National Energy Board

Office national de l'énergie

Reasons for Decision

NOVA Gas Transmission Ltd.

GH-2-2010

January 2011

Facilities

Canada

National Energy Board

Reasons for Decision

In the Matter of

NOVA Gas Transmission Ltd.

Application dated 19 February 2010 for the Horn River Project

GH-2-2010

January 2011

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Glossary of Terms and Abbreviations

10^3m^3	thousand cubic meters
$10^6m^3/d$	million cubic metres per day
$10^9m^3/d$	billion cubic metres per day
$10^{12}m^3$	trillion cubic metres per day
AIV	alternative integrity validation
Alberta System	An integrated natural gas pipeline system owned by NGTL
AMBNS	Active Migratory Bird Nesting Survey
Applicant or the Company	NOVA Gas Transmission Ltd.
Application	Application to the Board, pursuant to section 52 of the *National Energy Board Act* for a Certificate of Public Convenience and Necessity
BC	British Columbia
Bcf/d	billion cubic feet per day
BP Canada	BP Canada Energy Company
Cabin Gas Plant	A natural gas processing facility proposed by Encana Corporation and approved by the BC Oil and Gas Commission in 2010; the Cabin Gas Plant is located at the northern end of the Cabin Section pipeline
Cabin meter station	A proposed meter station on the northern end of the Cabin Section, which would connect with the Encana Corporation Cabin Gas Plant
Cabin Section	The approximately 72 kilometre-long, 914 millimetre outside diameter sweet natural gas pipeline from the Cabin meter station to the Sierra meter station, proposed as part of the Horn River Facilities
CEA Act	*Canadian Environmental Assessment Act*
Certificate or CPCN	Certificate of Public Convenience and Necessity issued under section 52 of the *National Energy Board Act* authorizing the construction and operation of a facility
CHRP	Caribou Habitat Restoration Plan
CPP	Caribou Protection Plan

CPVCOS	cumulative present value cost of service
CSA	Canadian Standards Association
CSA Z662-07	Canadian Standards Association Z662-07, *Oil and Gas Pipeline Systems*
design forecast	An annual forecast used to identify the facilities required to accommodate maximum expected daily gas flows on the Alberta System
Draft ESR	Draft Environmental Screening Report
DTFN	Dene Tha' First Nation
EA	Environmental Assessment
EAE	Enhanced Aboriginal Engagement
EC	Environment Canada
Ekwan meter station	A meter station on the eastern end of the Ekwan Pipeline, which connects to the NGTL Northwest Mainline
Ekwan Pipeline	A National Energy Board-regulated pipeline (83 kilometres of 610 millimetre outside diameter pipe) extending from the existing Ekwan meter station to the Sierra Gas Plant
Ekwan Pipeline Assets	The assets that NGTL proposes to purchase from Encana Corporation comprising most of the assets of the Ekwan Pipeline
Ekwan Section	The name for the Ekwan Pipeline Assets once acquired by NGTL; includes the existing Ekwan Pipeline and related facilities and land rights, but does not include the 190 metres of the Ekwan Pipeline connecting to the Sierra Gas Plant
Ekwan Transfer Agreement	An agreement among Encana Ekwan Pipeline Inc., Encana Corporation and NGTL dated 2 November 2009 for the transfer of the Ekwan Pipeline Assets
Encana	Encana Corporation
Encana Ekwan	Encana Ekwan Pipeline Inc.
EPP	Environmental Protection Plan
ERP	Emergency Response Plan, also referred to as Emergency Procedures Manual

ESR	Environmental Screening Report pursuant to the *Canadian Environmental Assessment Act*
FA	Federal Authority
Filing Manual	National Energy Board Filing Manual, as revised from time-to-time
FNFN	Fort Nelson First Nation
FNFRC	Fort Nelson Forestry Roundtable Committee
FNIPMASC	Fort Nelson Invasive Plant Management Action Steering Committee
Footprint	The area directly disturbed by the construction and clean-up activities associated with the Horn River Facilities, including associated physical works and activities (e.g., permanent RoW, construction campsite, temporary workspace for construction, block valve and meter station sites)
Fort Nelson North Gas Plant	A natural gas processing facility proposed by Westcoast Energy Inc. carrying on business as Spectra Energy Transmission, and approved by the National Energy Board in 2010; the Fort Nelson North Gas Plant is located at the northern end of the Komie East Extension
FT-R	firm transportation–receipt
GHG	greenhouse gas(es)
HDD	horizontal directional drilling
Horn River Facilities	The new and modified facilities proposed for construction and operation under section 52 of the *National Energy Board Act*, specifically the Cabin Section, the Komie East Extension, the four new meter stations, and the proposed modifications to the existing Ekwan meter station; also includes the Section 58 Activities as applied for by NGTL on 29 September 2010
Horn River Mainline	The combined Cabin Section pipeline and Ekwan Pipeline Assets; the Komie East Extension is not part of the Horn River Mainline
Horn River Project	The proposed acquisition and integration of the Ekwan Pipeline Assets and the construction and operation of new and modified facilities that comprise the proposed pipeline

	extension of the NGTL Alberta System from the existing Ekwan meter station to the proposed Cabin meter station
HRB	Horn River Basin
IMP	Integrity Management Program
IPA Program	Integrated Public Awareness Program
IR	Information Request
Kitimat LNG terminal	proposed Kitimat liquefied natural gas export terminal
km	kilometre(s)
Komie East Extension	Approximately 2.2 kilometres of 610 millimetre outside diameter sweet natural gas pipeline, extending northeast from a point on the Cabin Section to the Komie East meter station, proposed as part of the Horn River Facilities
Komie East meter station	A proposed meter station on the Komie East Extension, which would be connected to the Fort Nelson North Gas Plant
kPa	kilopascal(s)
Little Hay Creek meter station	A proposed meter station on the Ekwan Section, which would be located approximately eight km west of the boundary between BC and Alberta
LSA	Local Study Area
m^3/d	cubic metres per day
m	metre(s)
mm	millimetre(s)
marketable gas	That portion of the expected ultimate recovery which will be transported to market after accounting for surface loss and processing shrinkage
Mcf/d	thousand cubic feet per day
MMcf/d	million cubic feet per day
MNA – Zone 6	Métis Nation of Alberta – Zone 6
MOE	Ministry of Environment
MOP	maximum operating pressure

MPMO	Major Projects Management Office
NCC	North Central Corridor
NEB or Board	National Energy Board
NEB Act or Act	*National Energy Board Act*
NGL	natural gas liquids
NGTL	NOVA Gas Transmission Ltd.
NGTL Tariff	The Alberta System Gas Transportation Tariff, as amended from time-to-time
NIT	NOVA Inventory Transfer
NPS	nominal pipe size (in inches)
NRRM	Northern Rockies Regional Municipality
NWML	Northwest Mainline on the Alberta System
OCC	Operations Control Centre
OD	outside diameter
OPR-99	*Onshore Pipeline Regulations, 1999*
PEA	Project Expenditure Authorization
PPBoR	Plan, Profile and Book of Reference
PRFN	Prophet River First Nation
the Project	the proposed Horn River Project
RA	Responsible Authority, as defined in subsection 2(1) of the *Canadian Environmental Assessment Act*
RoW	right-of-way
RSA	Regional Study Area
Section 58 Activities	The proposed clearing and construction of the Komie East Extension and the Project construction camp site in the winter of 2010/2011
Sierra Gas Plant	An existing natural gas processing plant in the Greater Sierra area of northeastern BC, which is owned and operated by Encana

Sierra meter station	A proposed meter station that would be located on the Cabin Section and connect to the Sierra Gas Plant
straddle plant	A facility that processes natural gas and extracts a portion of the heavier components (i.e., ethane, propane, butane and natural gas liquids) from the gas prior to returning the gas to the pipeline
SYD resource road	Sierra-Yoyo-Desan resource road
TC	Transport Canada
Tcf	trillion cubic feet
TLU	traditional land use
Toll Methodology and Integration Application	Alberta System Rate Design, Services and Integration Application based on a settlement with stakeholders, which NGTL filed with the Board in 2009
TransCanada	TransCanada PipeLines Limited
US	United States
WCSB	Western Canada Sedimentary Basin
WEG	Western Export Group (comprising Avista Corporation, Cascade Natural Gas Corporation, Northwest Natural Gas Company, Pacific Gas and Electric Company, Puget Sound Energy Inc., Southern California Gas Company and Terasen Gas Inc.)
Westcoast	Westcoast Energy Inc., carrying on business as Spectra Energy Transmission
WMFN	West Moberly First Nation

Recital

IN THE MATTER OF the *National Energy Board Act* and the Regulations made thereunder; and

IN THE MATTER OF an Application made under file number OF-Fac-Gas-N081-04 01 by NOVA Gas Transmission Ltd. (NGTL) dated 19 February 2010 for the Horn River Project, which is comprised of the following:

a) Purchase of the Ekwan Pipeline Assets

Leave to be granted to NGTL pursuant to section 74 of the *National Energy Board Act* (NEB Act) to acquire the Ekwan Pipeline Assets and such other orders, pursuant to the NEB Act, which are necessary to effect the transfer of the Ekwan Pipeline Assets in accordance with the terms and conditions set out in the agreement among Encana Ekwan Pipeline Inc., Encana Corporation and NGTL dated 2 November 2009 for the transfer of the Ekwan Pipeline Assets (Ekwan Transfer Agreement);

b) Horn River Project

A Certificate of Public Convenience and Necessity to be issued to NGTL pursuant to section 52 of the NEB Act authorizing the construction and operation of the Horn River Facilities consisting of approximately 74 kilometres of pipeline and facilities, and the operation of the Ekwan Pipeline Assets, effective on the closing of the Ekwan Transfer Agreement; and

c) Inclusion of Purchase Price of the Ekwan Pipeline Assets in the Alberta System Rate Base

Authorize NGTL, pursuant to section 59 of the NEB Act, to include the purchase price of the Ekwan Pipeline Assets plus adjustments in the Alberta System rate base as of the closing of the Ekwan Transfer Agreement; and

IN THE MATTER OF an application made under file number OF-Fac-Gas-N081-04 01 by NGTL dated 29 September 2010 for an order pursuant to section 58 of the NEB Act exempting NGTL from the requirements of section 33 of the NEB Act for the Komie East Extension and the construction camp of the Horn River Project;

AND IN THE MATTER OF National Energy Board Hearing Order GH-2-2010 dated 26 April 2010;

HEARD by way of written submissions:

BEFORE:

G. A. Habib	Presiding Member
L. Mercier	Member
S. J. Snook	Member

Chapter 1

Introduction

1.1 The Application

On 19 February 2010, NOVA Gas Transmission Ltd. (NGTL or Applicant), applied to the National Energy Board (NEB or Board), pursuant to the *National Energy Board Act* (NEB Act) for a Certificate of Public Convenience and Necessity (Certificate or CPCN) to construct and operate the Horn River Project (the Project).

The Project is a proposed extension of the Alberta System from a point 4.4 kilometres (km) east of the Alberta/British Columbia (BC) boundary on the existing NGTL Northwest Mainline (NWML) to two natural gas processing facilities – the Encana Corporation (Encana) Cabin Gas Plant and the Westcoast Energy Inc., carrying on business as Spectra Energy Transmission (Westcoast) Fort Nelson North Gas Plant – in the Horn River area of northeast BC. The Project would transport sweet natural gas and provide customers direct access to the NOVA Inventory Transfer (NIT) market.

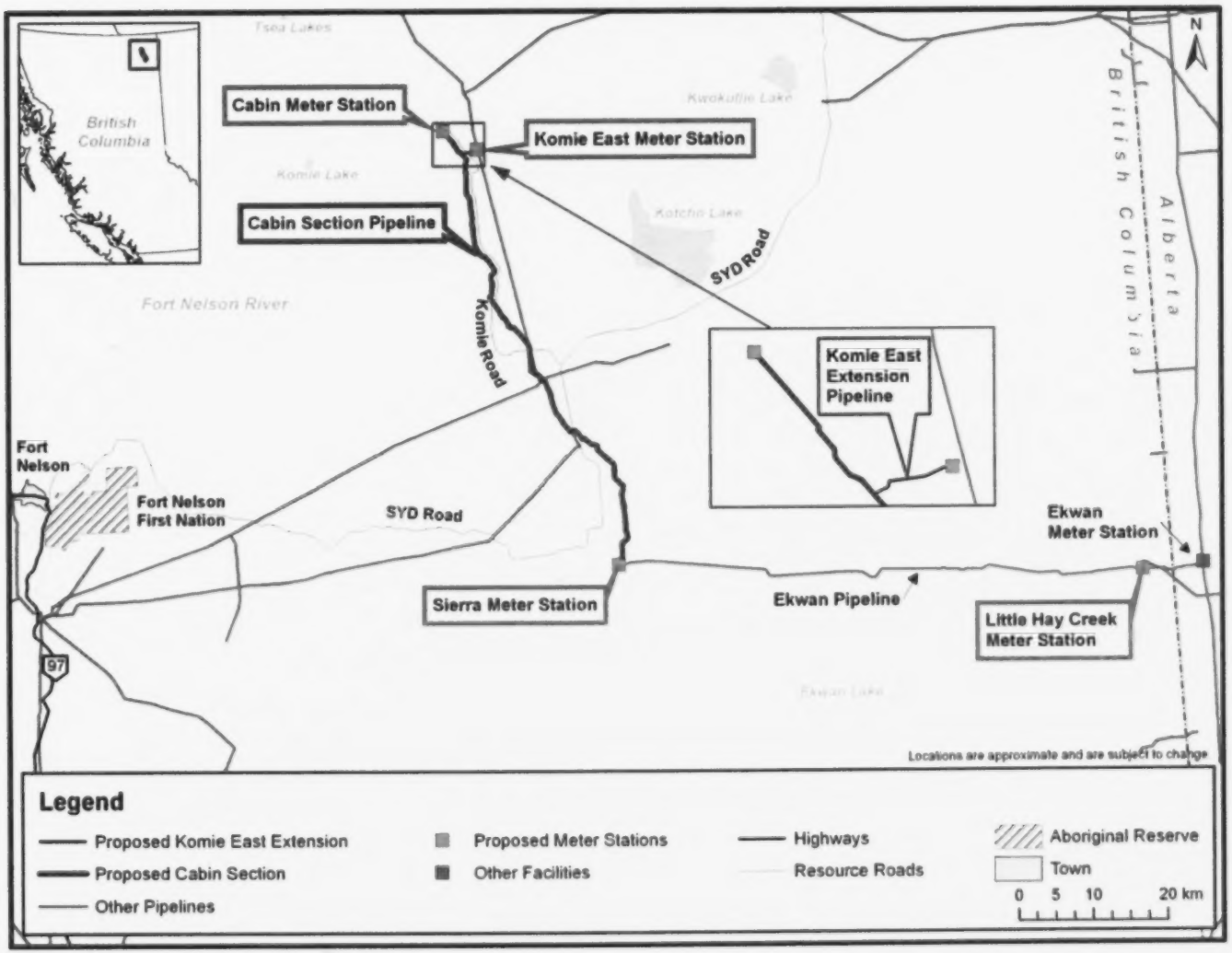
The Horn River Project is comprised of two primary components – the acquisition of a portion of the NEB-regulated Ekwan Pipeline from Encana Corporation (Ekwan Pipeline Assets) and the construction and operation of approximately 74 km of pipeline (47 km of the total new pipeline length would consist of new non-contiguous right-of-way (RoW)) and related facilities. The Project is located approximately 70 km east of Fort Nelson, BC. Some temporary infrastructure would be required for construction. Construction is proposed to begin in the first quarter of 2011 and the in-service date for the Project would be the first quarter of 2012.

The map in Figure 1-1 provides an overview of the Horn River Project facilities, pipeline routing and regional road access in the Project area.

Pursuant to subsection 8(2) of the *Onshore Pipeline Regulations, 1999* (OPR-99), NGTL originally sought approval to use its proprietary quality management system and alternative integrity validation (AIV) process as an alternative to hydrostatic testing of the new pipeline. Accordingly, NGTL requested that the Board waive the requirement for hydrostatic testing for Class 1 sections of the Cabin Section and Komie East Extension pursuant to paragraph 4(1)(d) and section 23 of the OPR-99 and clauses 8.1.2, 8.1.3 and 8.2.1 of Canadian Standards Association Z662-07, *Oil and Gas Pipeline Systems* (CSA Z662-07). Subsequently, on 4 May 2010, NGTL withdrew its application to use AIV for the Project.

On 29 September 2010, NGTL filed an amendment to its original Application for an order pursuant to section 58 of the NEB Act exempting NGTL from the requirements of section 33 of the NEB Act for the Komie East Extension and the construction camp of the Project.

Figure 1-1
Horn River Project: Pipelines and Facilities



1.1.1 Horn River Facilities

NGTL proposed to construct a new pipeline from the west end of the Ekwan Pipeline north to the Encana Cabin Gas Plant (Cabin Section). The Cabin Section would consist of approximately 72 km of 914 millimetre (mm) outside diameter (OD) pipe (nominal pipe size (NPS) 36 inches) and related facilities. NGTL also proposed to construct a new pipeline from an interconnection near the north end of the Cabin Section to the Fort Nelson North Gas Plant (Komie East Extension), which would consist of approximately 2.2 km of 610 mm (NPS 24) pipe and related facilities. A temporary overland water supply pipeline would be installed to provide water required for the hydrostatic testing of the new pipeline sections.

NGTL also sought approval for the construction of four new meter stations and modifications to an existing station. A new meter station would be required for the Cabin Section to connect to the Encana Sierra Gas Plant at the southern end of the Cabin Section (the Sierra meter station). New meter stations would also be required adjacent to the Encana Cabin Gas Plant at the northern end of the Cabin Section (the Cabin meter station) and adjacent to the Westcoast Fort Nelson North Gas Plant on the Komie East Extension (the Komie East meter station). The fourth new meter station, the Little Hay Creek meter station, would be adjacent to the Ekwan Pipeline at a point about eight km west of the Alberta/BC border. Piping modifications would also be required at the existing Ekwan meter station.

The Cabin Section, Komie East Extension, new metering facilities and modifications to the Ekwan Pipeline Assets are collectively referred to as the Horn River Facilities. The Cabin Section and the Ekwan Pipeline Assets, once acquired by NGTL, would form the Horn River Mainline.

1.1.2 Purchase of the Ekwan Pipeline Assets

The Ekwan Pipeline Assets are comprised of approximately 83 km of 610 mm (NPS 24) OD pipeline and related facilities. NGTL proposes to acquire the Ekwan Pipeline Assets from Encana pursuant to a transfer agreement dated 2 November 2009 among Encana Ekwan, Encana and NGTL (the Ekwan Transfer Agreement). Subject to regulatory approval, the closing date for the Ekwan Transfer Agreement is 30 September 2011.

1.2 GH-2-2010 Hearing Process

1.2.1 NEB Hearing Order and Written Hearing Process

On 26 April 2010, the Board issued the GH-2-2010 Hearing Order, which established the process for the Board's consideration of the Application. By letter dated 12 May 2010, the Board amended the deadline for the filing of an application to intervene for Aboriginal persons or groups who became aware of the GH-2-2010 proceeding by the Notice of Public Hearing published in *Windspeaker*.

The Hearing Order included the List of Issues which the Board proposed for consideration during its assessment of the Application. The Board had indicated that NGTL's proposed use of AIV would be on the List of Issues. NGTL subsequently withdrew its application to use AIV for

the Project and the final List of Issues was amended. The List of Issues is included in Appendix I of these Reasons for Decision.

The Hearing Order indicated that the Board would convene the oral portion of the hearing in October 2010. On 13 October 2010, the Board revised the hearing process, based on comments from Intervenors indicating that oral cross-examination of NGTL was not necessary. As a result, the oral portion of the GH-2-2010 proceeding was cancelled and the remainder of the proceeding was conducted by way of written submissions.

No party to the GH-2-2010 proceeding other than NGTL submitted written evidence. Several Intervenors submitted final written argument, but no party to the proceeding opposed the Application.

1.2.2 Environmental Screening Report

Projects that require the issuance of a Certificate of Public Convenience and Necessity under section 52 of the NEB Act trigger the requirement for an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (CEA Act). The Ekwan Pipeline was subject to an EA as part of the GH-1-2003 proceeding. Since the Horn River Facilities requires less than 75 km of new RoW, as defined in the CEA Act *Comprehensive Study List Regulations*, the Horn River Facilities were subject to a screening level of environmental assessment under the CEA Act.

On 9 December 2010, the Board released for public comment a Draft Environmental Screening Report (Draft ESR). The final Environmental Screening Report (ESR) incorporates the comments received on the Draft ESR, provides the views of the Board on environmental and socio-economic matters covered under the CEA Act, and includes the Board's CEA Act determination.

The final ESR is attached as Appendix IV to these Reasons for Decision.

1.2.3 Life Cycle Approach

In considering the Project, the Board used a life cycle approach. All issues and concerns before the Board were considered in the context of the Project (i.e., design, planning, construction, operation, decommissioning and abandonment).

1.2.4 Major Projects Management Office

In 2008, the federal government established the Major Projects Management Office (MPMO) to improve the performance of the Canadian regulatory system for major natural resource projects. An important part of the MPMO's work is to provide overarching project management and accountability for resource projects. With respect to Aboriginal Crown consultation for the Project, the MPMO has indicated that the government would rely on the Board's process, to the extent possible, to discharge any Crown duty to consult Aboriginal groups.

1.2.5 The Public Interest

In reviewing an application for a Certificate, the Board must consider whether the applied-for facilities are in the overall Canadian public interest. In doing so, the Board must, after carefully weighing all of the evidence in the proceeding, exercise its discretion in balancing the interests of a diverse public.

The Board has described the public interest in the following terms:

> *The public interest is inclusive of all Canadians and refers to a balance of economic, environmental and social interests that change as society's values and preferences evolve over time. The Board estimates the overall public good a project may create against its potential negative aspects, weigh its various impacts, and makes a decision.*[1]

In making its determination regarding public convenience and necessity, the Board must rely only on the facts that are established to its satisfaction through the hearing process, and must also proceed in compliance with the principles of natural justice.

1.3 Reasons for Decision GH-2-2010

On 16 December 2010, S. J. Snook, part of the three member panel for the GH-2-2010 proceeding, resigned from the NEB. Pursuant to subsection 4(3) and paragraph 16(2)(b) of the NEB Act, the decision on the Application has been taken by the remaining members of the panel.

These Reasons for Decision provide an overview of the matters considered by the Board in reaching a decision on the Application. Details of the Board's assessment of issues identified by the Board or by parties to the proceeding are set out in these Reasons for Decision. In coming to its findings, the Board considered all of the evidence on the record in this matter. The regulatory documents on file in the GH-2-2010 proceeding are available on the Board's website, www.neb-one.gc.ca.

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1 *Pipeline Regulation in Canada: A Guide for Landowners and the Public* (Revised September 2010), National Energy Board, page 1.

Chapter 2

Economic Feasibility

2.1 Need for Facilities

In making its determination on the economic feasibility of a pipeline and related facilities, the Board assesses the need for the pipeline and related facilities, and the likelihood of the pipeline and facilities being used at a reasonable level over their economic life. To make this determination, the Board considers the supply of natural gas that would be available for transportation on the pipeline, any transportation contracts underpinning the pipeline, and the availability of adequate markets to receive natural gas delivered by the pipeline.

The Board also considers other commercial impacts of the pipeline and facilities, the applicant's ability to finance the construction and ongoing operation and maintenance of the pipeline and facilities, and the project's effect on any other relevant matters of public interest. Other economic impacts of the Project are addressed in Chapter 8, Environment and Socio-Economic Matters. Matters relating to Toll Impact and Project Impact Analysis are discussed in Chapter 3.

2.1.1 Natural Gas Supply

Views of NGTL

NGTL submitted that the Horn River Basin (HRB) is an emerging shale-gas play in northeast BC and would be NGTL's main gas supply for the Horn River Project. Raw gas from the HRB would be processed into marketable gas at upstream facilities before being shipped to the proposed Cabin and Komie East meter stations. Conventional resources of the Jean Marie Field on the eastern side of the pipeline route would form a smaller source of gas and would be shipped from the Sierra meter station at the downstream end of the Cabin Section.

Table 2-1 shows a summary of unconventional and conventional resource assessments for the Project area. Conventional resources are allocated according to projected flows into existing infrastructure. Therefore, gas flowing into the Westcoast T-North pipeline system was not included in NGTL's conventional resource estimate. NGTL submitted that unconventional gas production from the HRB is expected to last approximately 160 years at the forecasted maximum production rate.

NGTL projected the amount of gas expected to flow on the Cabin Section of the Project (its productive capacity) by estimating the pace of drilling of unconventional resources of the HRB, and the production from future wells, excluding impurities and fuel gas removed before shipping.

Table 2-1
Marketable Natural Gas Potential Available for the Horn River Project

Source	Gas in Place		Marketable Gas	
	10^9m^3	Tcf	10^9m^3	Tcf
Conventional	24.7	0.872	12.3	0.433
Unconventional	13 900.0	490.0	2 900.0	104.0

NGTL determined the productive capacity at the Sierra meter station by using a tank model (where the gas resources are drained over a period of time) on the conventional resources of the Jean Marie Field. NGTL subtracted production that would fill Westcoast's T-North pipeline, thereby accounting for existing infrastructure in the productive capacity of the Ekwan Section.

NGTL provided low- and high-price scenarios to represent a range of possibilities for HRB production and pipeline throughput. In NGTL's view, well productivity has increased with each drilling season and is likely to continue increasing into the future.

NGTL projected that over 29.6 10^6m^3 (1.04 Bcf/d) of capacity for the Cabin Section would likely be required by 2025 to accommodate growth in HRB production.

Views of the Western Export Group (WEG)

WEG did not oppose the Project, but submitted that NGTL's long-term production forecast was speculative.

Views of the Board

The Board is satisfied NGTL has demonstrated that there is adequate gas supply in the Horn River Basin to support the Project. While any forecast is somewhat speculative, the Board is of the view that NGTL's forecast is based on widely used methodologies and that its underlying assumptions are reasonable.

2.1.2 Natural Gas Markets

Views of NGTL

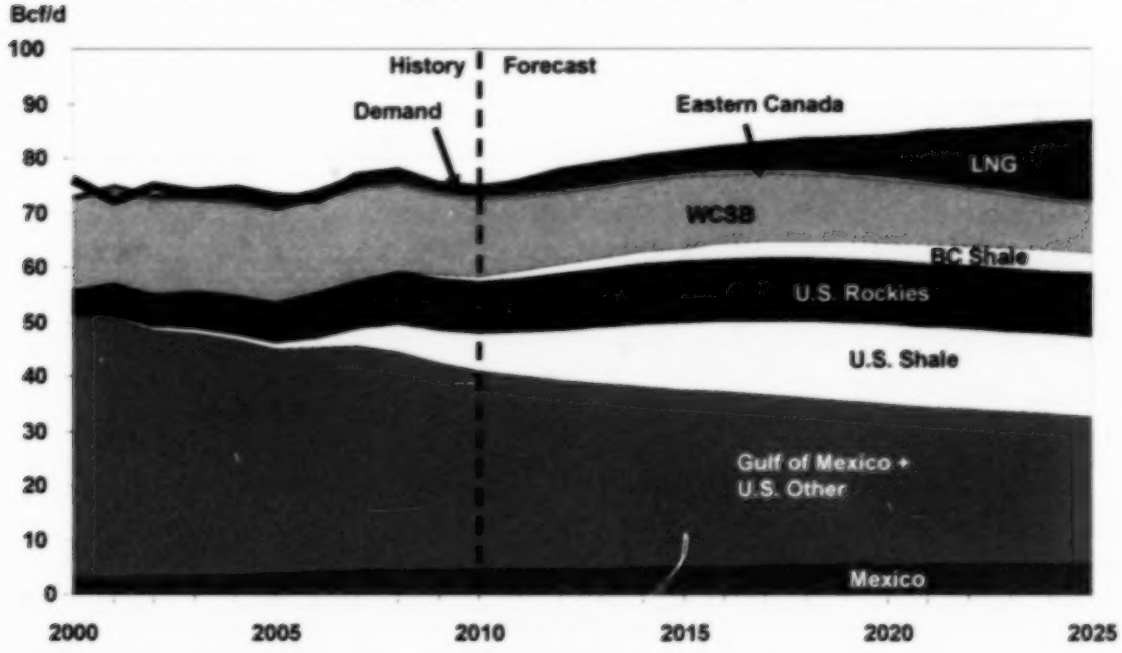
NGTL submitted that the Project would be an extension of the Alberta System and would provide incremental takeaway capacity from the HRB. Gas received on the Project would be available for purchase and sale in the NIT commercial hub. Once received on the Alberta System, the gas could be delivered to intra-Alberta markets or to various other North American markets via interconnecting pipelines.

NGTL stated that gas throughput on the Project would be readily absorbed, as it expects gas demand in Canada and the continental United States (excluding Alaska) to grow from approximately 2.0 $10^9m^3/d$ (70 Bcf/d) in 2008 to almost 2.2 $10^9m^3/d$ (78 Bcf/d) by 2025. This expected growth is primarily a result of increased use of natural gas for electricity generation in

the United States (US) and Canada, and greater gas consumption by the oil sands in western Canada.

NGTL also submitted that the production from the HRB was consistent with the overall North American supply and demand balance and would backfill conventional gas production declines in the Western Canada Sedimentary Basin (WCSB) and other North American basins. NGTL noted that, if competing supplies from the Marcellus gas play in the northeast US eventually displaced WCSB gas from Ontario and Quebec markets, exports from the Alberta System would not be reduced but redistributed to other North American markets. The North American supply/demand balance is depicted in Figure 2-1.

Figure 2-1
North American Supply/Demand Balance (including Mexico)



NGTL stated that it excluded any effects from the proposed Kitimat liquefied natural gas export terminal (Kitimat LNG terminal) on its productive capacity forecast. NGTL noted that the proposed Kitimat LNG terminal does not provide any direct take-away capacity from the HRB and that its development is still uncertain. If the Kitimat LNG terminal did go ahead, NGTL suggested that a portion or all of the incremental gas flowing on the Westcoast T-North system would supply the Kitimat LNG terminal and that any additional impact on Horn River volumes would be small.

Views of Parties

No Intervenors questioned NGTL's evidence regarding the adequacy of markets to receive and consume the gas to be transported on the Project.

Views of the Board

Given the integrated nature of the North American natural gas market, the Board finds NGTL's analysis of the continental supply/demand balance to be reasonable. The Board accepts NGTL's conclusion that the HRB could partially replace declining conventional gas volumes. Accordingly, the Board is satisfied that sufficient markets exist for gas that would be transported by the applied-for facilities.

2.2 Transportation and Throughput

Views of NGTL

Initially, NGTL indicated that eight customers had committed to executing firm service transportation-receipt (FT-R) contracts commencing in May 2012, with peak receipts of 14.3 $10^6m^3/d$ (503 MMcf/d) by November 2014. Over the course of the GH-2-2010 proceeding, three more shippers executed contracts with NGTL, bringing the total Horn River Project commitments to 15.1 $10^6m^3/d$ (562.2 MMcf/d) in 2015/2016.[2] NGTL further indicated the FT-R contracts were comprised of primary and secondary terms ranging from four to seven years.[3] The volume-weighted average term of the contracts underpinning the Project is approximately 4.5 years.

NGTL's productive capacity forecast for gas to be transported on the Cabin Section peaked at 29.6 $10^6m^3/d$ (1.04 Bcf/d) in 2025/2026 (Figure 2-2). NGTL examined various pipeline diameter alternatives for the Cabin Section and determined that a 914 mm (NPS 36) pipeline design represented the alternative with the lowest cumulative present value cost of service (CPVCOS). NGTL submitted that this alternative would give the Cabin Section a maximum capability of 44.3 $10^6m^3/d$ (1.6 Bcf/d). NGTL acknowledged that the Project's maximum throughput capability was effectively limited to 19.8 $10^6m^3/d$ (698.6 MMcf/d) by the capacity of the Ekwan Section. The Applicant indicated additional looping of the Ekwan Section would be required, starting in 2013, to allow forecasted volumes to flow on the Project.

The Project would connect with the Alberta System's NWML. NGTL indicated that sufficient downstream capacity was not available on the NWML to accept forecasted volumes from the Project and incremental facilities would be needed on the NWML by mid-2013, initially in the form of additional compression, followed by looping.

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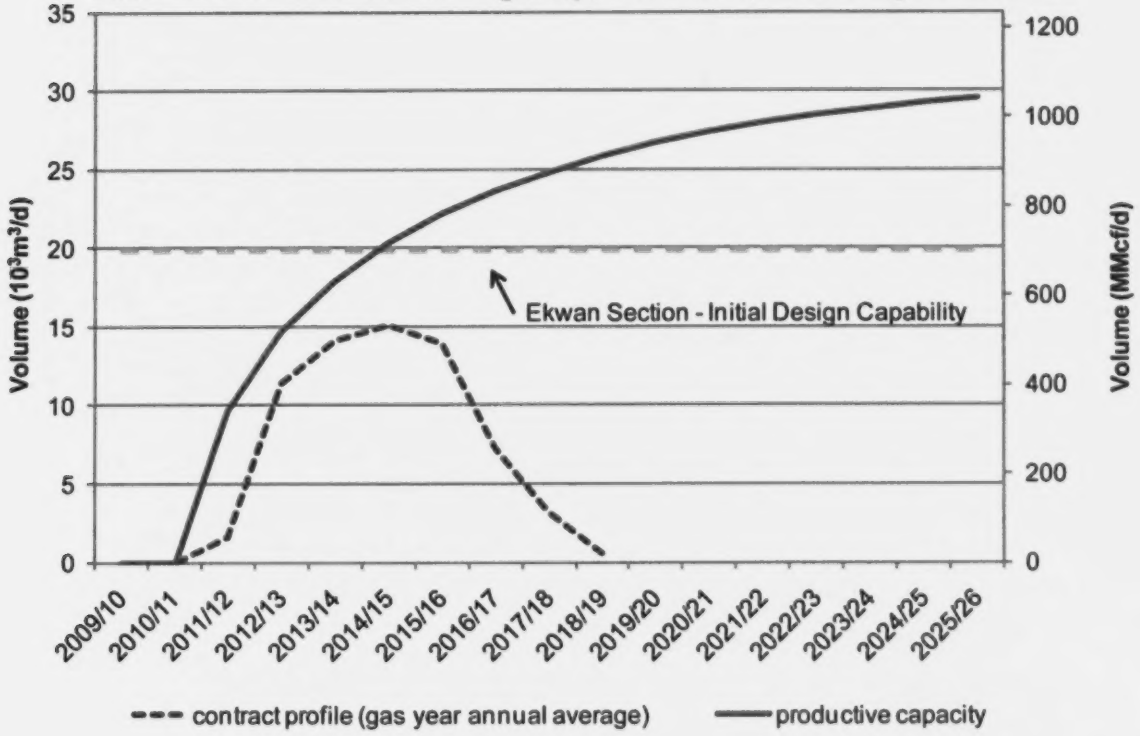
2 This excludes commitments from the existing Ekwan meter station, which are expected to be relocated to the Sierra and Little Hay Creek meter stations.

3 Proposed firm service contracts for the Horn River Project have primary terms ranging from one to four years and secondary terms of three additional years. During the primary term of the respective contracts, a customer may nominate for service only at the receipt point identified in the contract. In the secondary term, the customer may transfer all or a portion of their service to another receipt point on the Alberta System, subject to the conditions in the NGTL Tariff.

Figure 2-2
Cabin Section Productive Capacity, Contracts, and Design Forecast



Views of WEG

Given the limited gas processing capability currently available upstream of the Project and the maximum throughput capability of the Ekwan Section, WEG argued that NGTL did not address why the Cabin Section would be built with a significantly higher maximum capability.

Views of the Board

The Board finds that there are adequate contractual commitments to support the natural gas volumes expected to flow on the Project. The Board is of the view that NGTL's system design reasonably accommodates the supply forecast for the Project while using the least cost alternative. WEG's argument that the Cabin Section pipeline has too large a capacity presumes that current upstream gas processing capacity could not be expanded, or that new gas processing facilities could not be built upstream of the Project. In light of the robust supply potential of the HRB and the long term market demand, the Board finds this to be an unlikely scenario.

2.3 Natural Gas Liquids Matters

Views of NGTL

NGTL submitted that gas received at the Cabin and Komie East meter stations would have very low natural gas liquids (NGL) content and that this gas would be commingled with other volumes downstream of the Project. Given the relatively small amount of lean gas flowing on the Project compared to overall Alberta System volumes, NGTL stated that effects on existing straddle plants would be small prior to 2014.

Due to supply increases in the area, NGTL forecasted that the Peace River design area of the Alberta System would be operating at capacity within a few years and, as a result, volumes from the Project would increasingly flow across NGTL's North Central Corridor (NCC) towards intra-provincial markets in northeast Alberta. By 2014, gas volumes from the Project would predominantly flow on the NCC. As a result, NGTL did not expect any material impacts on the gas composition at the inlet of NGL straddle plants as a result of the volumes from the Project.

Views of BP Canada Energy Company (BP Canada)

BP Canada did not oppose the Project and agreed that its impact on the NGL industry would be small. BP Canada expressed concern that the impact on NGL flows of recent and future facility additions to the Alberta System could not adequately be assessed on a project-by-project basis. BP Canada indicated that an assessment that examines system flows in their entirety would be required at some point. It also indicated that NGL impacts should be considered part of the project justification process.

Although it did not propose that the Board include any approval conditions regarding NGL or gas streaming, BP Canada urged the Board to encourage and oversee resolution of issues related to gas streaming.[4] In particular, BP Canada requested that the Board suggest that NGTL recommence its Tolls, Tariff, Facilities and Procedures process to address streaming issues, and that NGTL report to the Board on progress of those discussions.

Views of the Board

The Board accepts NGTL's evidence that there are unlikely to be adverse impacts on the Alberta NGL industry as a result of the construction and operation of the Project. The Board acknowledges the concerns expressed by BP Canada. However, any adverse impacts on the Alberta NGL industry that might result from recent or future facility applications is beyond the scope of the GH-2-2010 proceeding. Therefore, the Board is not prepared to provide additional direction regarding NGL related issues.

4 In this case, gas streaming refers to directing gas that has low NGL content to markets where it can be directly consumed instead of flowing to NGL extraction facilities.

2.4 Ability to Finance, Shipper Commitments and Other Support for the Project

Views of NGTL

NGTL estimated the capital cost of the applied-for facilities to be $307 million and that it would obtain the funds required for the construction of the Horn River Project from its parent company, TransCanada PipeLines Limited (TransCanada). TransCanada would in turn fund these requirements with a combination of internally-generated cash flow and funds obtained from Canadian and US capital markets. TransCanada currently generates approximately three billion dollars in annual cash flow from its operations and is rated at the "A" level by major Canadian and US credit rating agencies. As a result, NGTL stated that TransCanada does not expect the financing of the Horn River Project to have a material impact on its financial position or on its wholly-owned regulated operations.

NGTL stated that the Horn River Project would be decommissioned and abandoned in accordance with all applicable regulatory requirements at the time of decommissioning and abandonment. NGTL is currently participating in Stream 3 of the Board's Land Matters Consultation Initiative. NGTL stated that it would comply with the RH-2-2008 Reasons for Decision.

Shippers made financial commitments in support of the Horn River Project by executing Project Expenditure Authorizations (PEAs) that would ensure cost accountability through the construction period. NGTL stated that it would replace the PEAs with FT-R contracts when it places the facilities in service. NGTL has executed FT-R contracts with 11 shippers and indicated that there is the prospect of adding one more shipper. The estimated revenue collected during the primary and secondary terms, based on a rolled-in tolling methodology, would be approximately $253 million or about 82% of the Project's capital cost. NGTL noted that it expects volumes to flow under some form of receipt service and generate the associated revenue beyond the initial FT-R contract terms, which are seven years or less.

NGTL noted that its forecast of productive capacity available to the Horn River Project underpins its expectation that the Project facilities would be highly utilized in the future. In addition, NGTL stated that the growing, long-term role for BC shale gas in the North American supply mix is necessary to meet continental demand, as depicted in Figure 2-1.

In NGTL's view, its process for determining facility additions and associated contract term requirements, combined with its forecast evidence, provides an appropriate determination of optimal facilities and justifies the need for the Project.

In response to the arguments made by WEG, NGTL was not of the view that longer term contracts were necessary, as proposed by WEG, and stated that the Project contracts exceed the minimum contract requirements for FT-R service as specified in NGTL's Gas Transportation Tariff (NGTL Tariff). NGTL further stated that the Project is underpinned by NGTL's long-term forecast of supply and demand for gas in North America that demonstrates that the facilities would be used at reasonable levels over the life of the Project.

Views of Parties

No party raised concerns about NGTL's proposed method of financing or TransCanada's ability to finance the Project.

WEG disputed NGTL's evidence that approximately 82% of the Project's capital cost would be recovered during the primary and secondary terms of the FT-R contracts. WEG advocated a volume-weighted average contract term of eight years.

WEG also argued that they were at a distinct disadvantage because there was no scheduled opportunity in the GH-2-2010 proceeding to express opposition or concern, other than by implication through Information Requests (IRs).

Views of the Board

The Board is of the view that NGTL's parent company, TransCanada, has the ability to finance the construction of the Project and to place it in operation. The Board is satisfied that NGTL is aware of its obligations to plan for decommissioning and abandonment costs in accordance with the RH-2-2008 Reasons for Decision.

The Board acknowledges that shippers' contractual commitments for this Project meet the requirements for FT-R Service in the NGTL Tariff as approved by the Board in its RHW-1-2010 Reasons for Decision. The Board is of the view that any changes to the contract term for new FT-R service on the Project, as advocated by WEG, are outside the scope of this proceeding.

The Board has determined that, through a combination of the shipper contractual commitments and NGTL's long term supply and demand forecast, NGTL has demonstrated the economic feasibility of the Project. The Board finds that the applied-for facilities would be used at reasonable levels over their economic life. In making its determination the Board had regard to the supply available to support the Project and whether there are sufficient markets for the projected production. Furthermore, it is the Board's view that the Project would provide market options through the NIT.

The Board notes that NGTL provided key supply/demand data after several rounds of IRs by the Board and other parties. To enhance the efficiency of the application review process, the Board reminds NGTL that this information must be provided with the filing of a project application.

Regarding WEG's concern about the hearing process, the Board notes that it established a process in the GH-2-2010 Hearing Order that allowed interested parties to express opposition and concern through IRs, the filing of evidence, oral cross-examination of NGTL, and final argument. On 13 October 2010, the Board cancelled the oral portion of the hearing based

on comments received from interested parties. These comments included a letter from WEG dated 5 October 2010, which indicated that oral cross-examination of NGTL was not necessary and that written final argument was preferred. The Board finds WEG's views expressed in their final argument to be sharply incongruous with the comments in their 5 October 2010 letter.

Chapter 3

Toll Methodology and Project Impact Analysis

NGTL summarized its toll methodology assumptions in the Application and analyzed the impact of the proposed Project on the Alberta System tolls, cost of service and fuel consumption. NGTL and other parties to the GH-2-2010 proceeding addressed data and assumptions used in the NGTL impact analysis such as transportation revenues, costs (e.g., municipal taxes) and potential future incremental facilities that would be required to transport HRB gas.

3.1 Toll Methodology

Views of NGTL

NGTL proposed to establish rates for service on the Project on a rolled-in basis in accordance with the governing Alberta System rate design methodology and the approved rates. During the proceeding, NGTL advised that rate design and tolling issues were being addressed in the Board's RHW-1-2010 proceeding, which considered NGTL's Toll Methodology and Integration Application.[5] NGTL's rate design methodology determines tolls at individual receipt points and continues with NGTL's practice of rolled-in tolling for facility additions to the Alberta System. NGTL indicated that if the Board approves the Project, NGTL would file a separate application for the new receipt points and the associated tolls.

NGTL stated that when it performed its impact analysis for the Project, it relied on the toll design in effect at the time the Application was filed, rather than the toll design in NGTL's Toll Methodology and Integration Application. However, NGTL stated that the toll design in its Toll Methodology and Integration Application would have a similar impact.

3.2 Impact on Tolls and Fuel Consumption

Views of NGTL

NGTL estimated the impact of the Horn River Project on Alberta System full path ex-Alberta toll (combined receipt and delivery tolls) for 2012 through 2016. NGTL submitted that the estimated toll impact in 2013 would be a reduction of 70 cents per $10^3m^3/d$ (2.0 cents per Mcf/d). The additional throughput on the Project in 2013 would increase fuel consumption on the Alberta System and result in an additional equivalent cost of approximately 18 cents per 10^3m^3(0.5 cents per Mcf). NGTL also submitted that the toll impacts of a potential future expansion, that would include increased throughput and additional capital expenditures necessary to loop the Ekwan Section, would result in a toll benefit of up to $1.10 per $10^3m^3/d$ (3.0 cents per Mcf/d) in 2016.

NGTL estimated incremental revenues in its cost of service and toll impact analysis by treating the delivery volumes and associated revenues of the Project as export volumes rather than a

5 See NEB Reasons for Decision RHW-1-2010, NOVA Gas Transmission Ltd. (NGTL) Rate Design Methodology and Integration Application, August 2010.

blend of export and intra-Alberta delivery volumes. NGTL estimated revenue in this manner because the Project would result in additional supply on the Alberta System and additional deliveries to export points. NGTL did not expect the intra-Alberta demand to change because of supply from the Project.

During the course of the GH-2-2010 proceeding, NGTL revised upward its estimate of municipal taxes payable to BC municipalities and acknowledged that it omitted to apply a 2% escalation factor. However, NGTL provided calculations to illustrate that these adjustments would have no material effect on the estimated toll impact of the Horn River Project.

NGTL estimated that the additional throughput from the Horn River Project would increase the Alberta System fuel ratio by 0.07% or an additional cost equivalent to 18 cents per 10^3m^3 (0.5 cents per Mcf) in 2013. NGTL also estimated the impact of the Project on the Alberta System fuel ratio would be 0.13% in 2015 because of greater incremental gas flows from the Project. NGTL noted the incremental receipt and delivery revenues from these flows would more than offset the increased fuel cost associated with the greater flows.

3.3 Potential Future Incremental Facilities

Views of NGTL

NGTL noted that the Project's initial capital cost of $307 million could be followed by incremental capital spending of $217 million for the looping of the Ekwan Section between 2013 and 2015. NGTL stated that these additional facilities would be applied for only if the forecast peak flows and corresponding contracts materialized. NGTL was of the view that the incremental cost of these facilities should be excluded from the impact analysis for the Project because their scope and timing were uncertain.

Views of WEG

WEG argued that NGTL overstated the Project's economic benefits, as measured by the impact of the Project on the Alberta System tolls. WEG also argued that NGTL understated the Project's impact on the fuel ratio, used the incorrect methodology to estimate BC municipal taxes, and omitted the escalation factor in its calculations. WEG did not agree with NGTL's exclusion of future incremental facilities that may be required to transport HRB gas in its impact analysis, and was of the view that these facilities should have been included.

WEG submitted that if the Board approved the Project, further conditions about the impact analysis for the Project would be required. WEG proposed that the Board require NGTL to file revised cost of service, rate impact and fuel impact analyses for the period of 2012 to 2020. In addition, WEG argued that the Board should require NGTL, in its revised analyses, to identify, describe and explain the need for all related incremental downstream facilities that are likely to be required to deliver the Horn River volumes.

WEG also expressed concern about the appropriateness of the ceiling for the FT-R toll, and suggested that it would be appropriate for the Board to review this ceiling earlier than was stated in the RHW-1-2010 Reasons for Decision.

Views of the Board

NGTL did not seek any rulings from the Board regarding the method of tolling or tariff regulation for the Project, other than requesting that the purchase price of the Ekwan Pipeline Assets plus adjustments be included in the Alberta System rate base. The Board is of the view that, with the exception of this request, matters relating to NGTL's toll methodology are outside the scope of this proceeding.

The Board notes that prior to placing the Project in service, NGTL is required to seek a separate approval from the Board for the new receipt points and associated tolls.

The Board is of the view that the Horn River Project would result in an overall benefit to the Alberta System toll payers. The Board is satisfied that, in this instance, revenues and costs used by NGTL in its analysis for the 2012 to 2016 period were appropriate to estimate the cost of service and toll impacts of the Project. The Board is also satisfied with NGTL's assessment of the impact of the Project on the fuel ratio for the Alberta System. The Board recognizes that NGTL underestimated the amount of municipal taxes payable to BC municipalities; however, the Board is of the view that the underestimated amount would have no material effect on the toll impact of the Horn River Project.

The Board notes that NGTL provided evidence of the toll impact of potential new facilities incremental to those in its Application by analyzing, over the period of 2013 to 2015, the additional capital expenditures necessary to loop the Ekwan Section of the Project. The Board finds that NGTL has demonstrated that the additional facilities and associated throughput would result in net benefits to the Alberta System.

Regarding WEG's concerns regarding the appropriateness of the ceiling for the FT-R toll, the Board is of the view that this matter is outside the scope of this proceeding.

In addition, the Board has considered WEG's proposed conditions for the Project. The Board finds that WEG has provided insufficient support for its proposed conditions, and therefore, WEG's conditions will not be incorporated in any Board approval.

Much of NGTL's evidence about future incremental facilities associated with the Project was provided in response to IRs made by the Board and other parties. In future facilities applications the Board expects NGTL to identify and describe, to the extent possible, the treatment of potential future incremental facilities that may be required to complement an applied-for project. This would be useful to the Board and to all parties when considering project scope and impact.

Chapter 4

Facilities and Emergency Response Matters

The Board uses a risk-based approach so that NEB-regulated facilities and activities are safe and secure from their initial construction through to their eventual abandonment. In consideration of the safety and security of proposed facilities, the Board assesses at a conceptual level whether or not the facilities are appropriately designed for the properties of the product being transported, the range of operating conditions, and the human and natural environment where the facilities would be located. Specific considerations include the company's approach to engineering design, integrity management, security, and health and safety.

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the OPR-99, the commitments made during the proceeding and the conditions attached to any approval. The OPR-99 references various engineering codes and standards including CSA Z662-07. The company is responsible for ensuring that it follows the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by the company in accordance with the OPR-99.

With respect to emergency response matters, the NEB expects companies to develop and implement Emergency Preparedness Response programs for all aspects of their operations. On 24 April 2002, the NEB issued a letter to all oil and gas companies under the jurisdiction of the Board setting out its expectations for appropriate and effective Emergency Preparedness and Response programs.

4.1 Description of Facilities

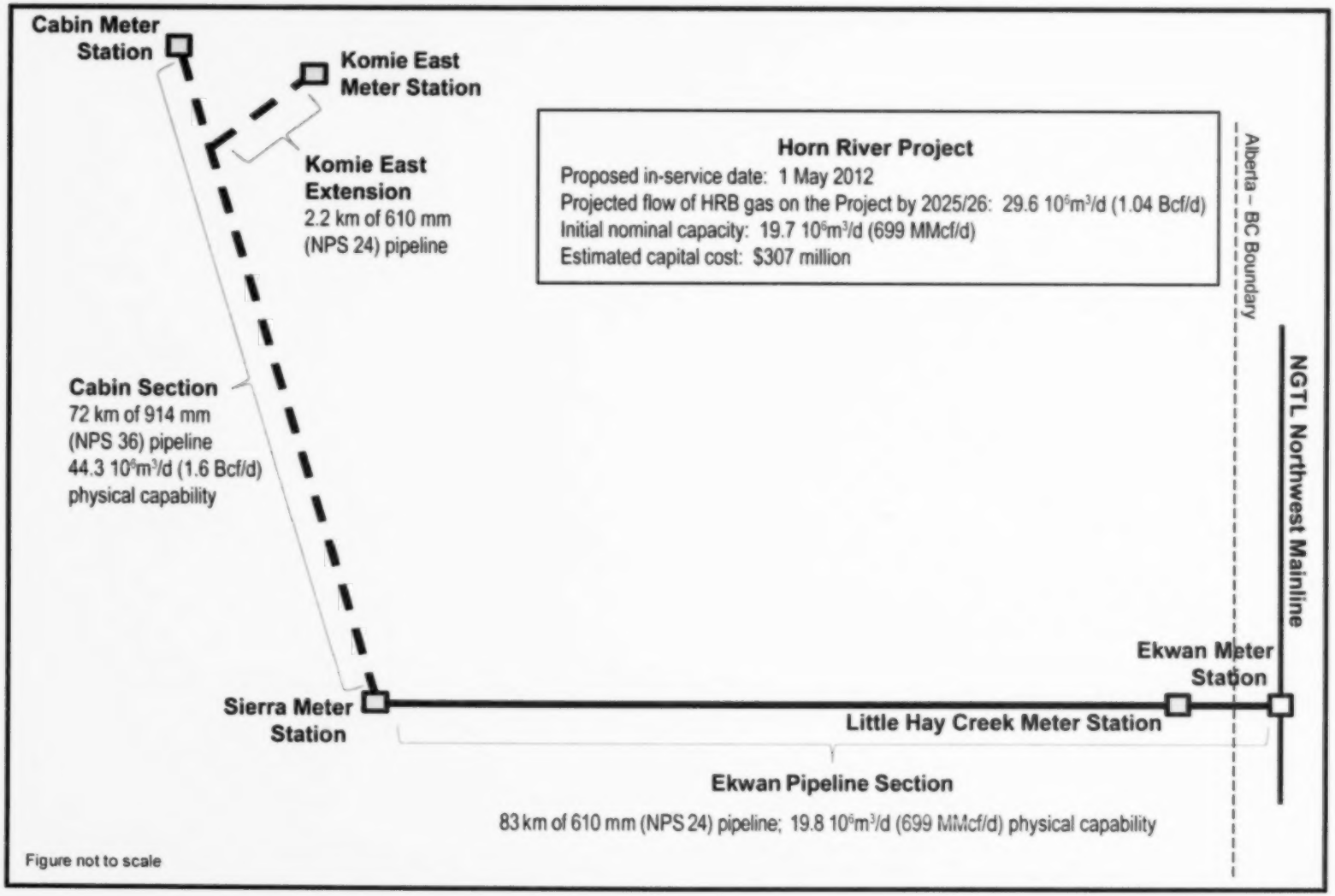
The Horn River Project includes approximately 83 km of 610 mm (NPS 24) pipeline to be acquired from Encana (the Ekwan Section) as well as the Horn River Facilities.

The Horn River Facilities include the Cabin Section (approximately 72 km of 914 mm (NPS 36) OD pipeline), the Komie East Extension (approximately 2.2 km of 610 mm (NPS 24) OD pipeline), four new meter stations (the Cabin, Komie East, Sierra and Little Hay Creek meter stations), modifications to the existing Ekwan meter station, block valves, and appropriate tie-in valves, side valves and blind flanges.

The Cabin Section pipeline would be designed to transport sweet natural gas at a maximum operating pressure of 9930 kilopascals (kPa), with an initial capacity of 19.7 10^6 m^3/d (696 MMcf/d).

Figure 1-1 is a map of the proposed Horn River Project and Figure 4-1 provides a schematic of the characteristics of the Project's pipelines and associated facilities.

Figure 4-1
Horn River Project: Schematic of Pipelines and Facilities


Cabin Meter Station
Komie East Meter Station
Komie East Extension
2.2 km of 610 mm (NPS 24) pipeline
Horn River Project
Proposed in-service date: 1 May 2012
Projected flow of HRB gas on the Project by 2025/26: 29.6 10⁶m³/d (1.04 Bcf/d)
Initial nominal capacity: 19.7 10⁶m³/d (699 MMcf/d)
Estimated capital cost: $307 million
Alberta – BC Boundary
NGTL Northwest Mainline
Cabin Section
72 km of 914 mm (NPS 36) pipeline
44.3 10⁶m³/d (1.6 Bcf/d) physical capability
Ekwan Meter Station
Sierra Meter Station
Little Hay Creek Meter Station
Ekwan Pipeline Section
83 km of 610 mm (NPS 24) pipeline; 19.8 10⁶m³/d (699 MMcf/d) physical capability
Figure not to scale

4.2 Design, Construction and Operation

In discharging its regulatory oversight responsibilities, the Board uses a risk-based compliance verification approach so that companies identify and manage integrity-related hazards that may impact safety and the environment throughout the life cycle of a project. This life cycle approach follows the project from design through construction and operation, until the pipe is abandoned.

The adequacy, implementation and effectiveness of a company's commitments are typically verified by the Board through audits, inspections and meetings. In addition, the Board may also perform ongoing monitoring of a company's compliance and incidents. This compliance approach is an integral part of the Board's continuous oversight of a company's pipeline and facilities. Accordingly, should the Horn River Project be approved, the Board would employ its normal compliance verification approach as a means of verifying that the company is meeting the commitments outlined in the GH-2-2010 proceeding.

Views of NGTL

NGTL submitted that the applied-for Horn River Facilities would be designed, constructed and operated, and the Ekwan Section would be operated in accordance with CSA Z662-07 and the OPR-99. Programs and procedures for the Project such as the joining program and non-destructive examination of welds would comply with these standards.

4.2.1 Geotechnical

The Horn River Project is located within the sporadic discontinuous permafrost zone, as defined by the Geological Survey of Canada. NGTL submitted that it is designing the Horn River Facilities to address sporadic discontinuous permafrost conditions, and that should sporadic discontinuous permafrost be encountered during construction, mitigation measures would be implemented, such as installing heavy-wall pipe within the transition between discontinuous permafrost areas of concern and non-permafrost areas to reduce the effects of settlement, and installing buoyancy control to inhibit upward movement of the pipe.

NGTL submitted that a geotechnical assessment of the pipeline route was conducted so the pipeline would be safely constructed. The results of the assessment would be taken into account in NGTL's detailed design. In addition, NGTL committed to completing a geotechnical verification program following the clearing of the pipeline RoW and before the start of pipe-laying operations. The results of that program would be used to confirm and refine NGTL's mitigation measures for sporadic discontinuous permafrost.

NGTL noted that a Discontinuous Permafrost Contingency Plan was included as part of NGTL's Environmental Protection Plan (EPP) for the Project. Additionally, following construction, NGTL intends to implement TransCanada's Integrity Management Program (IMP), monitor ground temperature, and profile the top of the pipeline in areas where discontinuous permafrost was encountered to verify that there are no issues in those areas

4.2.2 Construction

NGTL indicated that it would develop and implement a construction safety program for the construction of the Horn River Facilities. Construction would be supervised and inspected to ensure compliance with all applicable regulations, standards and codes.

NGTL submitted that several processes are utilized for identifying and reconciling any non-conformances or unacceptable deviations noted during inspection of construction activities. Many deviations would be resolved immediately on-site while those that could not be adequately addressed in the field would be brought to the attention of the construction manager, who would engage the project manager to determine appropriate corrective actions.

NGTL noted that hydrostatic testing would be conducted for the new pipeline sections, and that construction of a temporary overland water supply pipeline would be required. The temporary pipeline would be up to 324 mm (NPS 12) in diameter. Routing would include 12 km of temporary workspace up to 13 metres (m) in width, extending from Cabin Lake to the inlet of the Komie East Extension pipeline.

4.2.3 Operation

NGTL stated that health, safety, and environmental performance would be addressed by utilizing TransCanada's Health, Safety & Environment Management System, which would apply to the complete life cycle of the Project.

To address pipeline operation and system maintenance, NGTL proposed use of the applicable TransCanada Operating Procedures. These procedures describe how the work would be accomplished, identify competency and documentation requirements, and provide references to the appropriate health, safety and environment requirements.

NGTL submitted that the Horn River Project would be operated as an extension of the TransCanada Alberta System, which is controlled from the TransCanada Operations Control Centre (OCC), located in Calgary, Alberta. The OCC uses a computer-based Supervisory Control and Data Acquisition system to continuously monitor and control pipeline operation, including valves and metering facilities. It is staffed 24 hours a day, but in the event that it becomes unavailable, a Backup Control Centre is available at all times.

4.2.4 Security

Construction and operation of the Horn River Project would be governed by TransCanada's overarching corporate security policy. The policy would require that a security assessment be conducted, and that a Project-specific security management plan be developed and implemented.

4.3 Pipeline Integrity

NGTL submitted that TransCanada's IMP would be used to monitor, identify, and mitigate risks and hazards to the integrity of the Horn River Project throughout pipeline design, construction and operation. The principal objectives of the IMP are to reduce environmental impacts, protect installed pipelines and facilities, maintain reliability and address the safety of the public and

employees. Regular preventative maintenance programs would be incorporated into the design and operation of the pipeline including: aerial patrols, inline inspections, monitoring of cathodic protection, and installation of pipeline markers at roads and pipeline watercourse crossings. Potential integrity concerns are identified and inspection and mitigation activities are initiated based on risk assessments of the information collected from maintenance programs.

NGTL stated that TransCanada, as operator of the Alberta System and the Horn River Project, would, in keeping with the purpose of incident prevention, assess and identify new and existing pipelines for all time-dependent, stable and time-independent hazards listed in the American Society of Mechanical Engineers Code B31.8S, *Managing System Integrity of Gas Pipelines*. NGTL further stated that this code includes the risks noted in CSA Z662-07. Risks and hazards to the integrity of new and existing pipelines are identified and mitigated through pipeline design, construction and operation.

4.4 Emergency Preparedness and Response Planning

NGTL stated in its Application that the existing Emergency Response Plan (ERP) for the Alberta System would be expanded to include the Horn River Project, and that the ERP would be completed prior to the Project being placed in service.

In the event of an emergency, such as a pipeline break, low pressure detectors on block valves would cause the valves to close, isolating the pipeline segment. Pipeline pressure, gas quality, and meter station status is also monitored through the OCC.

NGTL noted that TransCanada's Integrated Public Awareness (IPA) Program, which provides information to the public concerning topics such as location of facilities and steps to be taken in the event of an emergency, would be adopted for the Project. NGTL further noted that the IPA Program would take effect once the Project is in operation.

Views of Parties

No party raised concerns about NGTL's proposed design, construction and operation for the Project, or its emergency preparedness and response planning.

Views of the Board

The Board is satisfied that the general design of the Horn River Facilities is appropriate for their intended use, and that the facilities would be constructed in accordance with the widely accepted standards for design, construction, and operation, including the OPR-99 and CSA Z662-07. Should a Certificate be issued, the Board would require NGTL to design, locate, construct, install and operate the Horn River Project in accordance with the specifications, standards, and other information referred to in its Application or as otherwise agreed to in its related submissions (Condition 2 of Appendix II). In addition, the Board would require NGTL to update its Commitments Tracking Table (Condition 4 of Appendix II) to reflect commitments made throughout this proceeding.

The Board is of the view that construction practices must address safety considerations. To facilitate the ongoing review by the NEB of NGTL's safety plans and performance, the Board would require NGTL to submit a construction safety manual for the Section 58 Activities and the Horn River Facilities (Condition 7 and 13, respectively of Appendix II). Additionally, the Board would require NGTL to submit a construction schedule as well as construction progress reports (Condition 16 and 18, respectively of Appendix II). The Board's oversight of construction of the Horn River Facilities would include verification of NGTL's compliance with its construction safety program, as facilitated by the filing of NGTL's construction schedule and progress reports.

With respect to pipeline integrity, the Board finds that the integrity management process proposed by NGTL for the Horn River Project meets the requirements of the OPR-99 and CSA Z662-07. The Board further notes that the measures proposed to address potential sporadic discontinuous permafrost conditions are acceptable. Should a Certificate be issued for the Project, the Board intends to apply its risk-based compliance verification approach to monitoring NGTL's compliance with its integrity management process. The Board would verify whether NGTL proactively identifies and effectively manages integrity-related hazards, including the prevention of detrimental effects due to sporadic discontinuous permafrost that may impact safety and the environment throughout the life cycle of the Project. In addition, to verify the implementation of NGTL's quality management system as it relates to pipe materials, the Board would impose a condition requiring NGTL to file pipe manufacture and quality control information (Condition 19 of Appendix II).

The Board expects NGTL to complete a hydrostatic pressure test as a safety validation prior to the operation of the Horn River Facilities. Should a Certificate be issued, the Board would impose a condition requiring NGTL to file the Joining Program and Field Pressure Testing Program (Condition 15 of Appendix II), prior to commencement of those activities.

Regarding pipeline security, the Board notes NGTL's submission that a security management plan would be developed and implemented for the Horn River Project. The Board is of the view that security programs should provide for safe and secure practice in the design, construction, operation and maintenance of a pipeline system. In addition, the Board expects that such a plan be developed in accordance with the OPR-99 and the Proposed Regulatory Change 2006-01, which outlines the Board's expectations for a Pipeline Security Management Program. Therefore, should a Certificate be issued, the Board would impose a condition requiring a security program in accordance with Proposed Regulatory Change 2006-01 (Condition 6 and 12, respectively of Appendix II).

The Board finds that the measures proposed by NGTL to deal with emergency preparedness and response are appropriate and notes that the OCC would be notified in the event of an emergency. Should a Certificate be issued, the Board would impose a condition requiring NGTL to file the updates to its ERP (Condition 28 of Appendix II).

The Board reminds NGTL that an application pursuant to section 47 of the NEB Act for leave to open would be required prior to the operation of the Horn River Facilities.

Chapter 5

Public Consultation

The Board requires companies to undertake an appropriate level of public consultation, commensurate with the setting, nature and magnitude of a project. This chapter addresses NGTL's public consultation program. NGTL's Aboriginal engagement and consultation are discussed in Chapter 6.

5.1 NGTL's Public Consultation Program

Views of NGTL

NGTL designed and conducted its public consultation program in accordance with the principles and methods of TransCanada's community relations practices. The program consists of four phases:

1. Stakeholder Identification and Early Notification: focused on the initial public disclosure of the Project and communication with potential stakeholders, including responding to public inquiries.

2. Stakeholder Outreach: focused on enhanced communications with stakeholders, including discussions, community meetings, open houses and ongoing information distribution.

3. Ongoing Stakeholder Outreach and Regulatory Filings: continued stakeholder consultation and communication to solicit feedback, expand stakeholder dialogue, address and resolve issues and advise stakeholders about how they can participate in the Board's regulatory process.

4. Post-filing of Application through Project Construction: continues through the regulatory review process and the completion of construction and includes stakeholder updates, responding to inquiries, resolving emerging issues, and continuing to communicate with all stakeholders. Following construction, stakeholder consultation for the Project would be addressed in TransCanada's IPA Program.

NGTL commenced its Horn River Project public consultation program in November 2008. Project-related information was provided in meetings with community representatives, telephone calls, project information mail-outs and an open house held in Fort Nelson, BC. NGTL's more comprehensive stakeholder outreach for the Project was initiated in April 2009.

NGTL noted the three primary issues raised by stakeholders through its public engagement and consultation activities: economic opportunities, cumulative impacts on regionally-based service agencies and impacts on boreal woodland caribou. These concerns are discussed further in Chapter 8.

NGTL noted that since the Application filing, the only additional issues raised were the use of local timber resources and the possibility of advance clearing of the Komie East Extension RoW and the Project construction camp site in the winter of 2010/2011. These issues are discussed in Chapters 8 and 9.

Views of Parties

No party to this proceeding raised concerns about NGTL's public consultation program for the Horn River Project.

Views of the Board

The Board notes NGTL's efforts to identify, engage, and consult with stakeholders in the Project area and its commitment to continue its public awareness and consultation activities throughout the life of the Project. The Board finds that NGTL's consultation program is appropriate for the setting, nature and magnitude of the Project.

Chapter 6

Aboriginal Matters

6.1 Enhanced Aboriginal Engagement Process for the Horn River Project

Whenever a project has the potential to impact the rights or interests of Aboriginal groups, the Board obtains as much evidence as possible so that it may assess the potential impacts and factor that consideration into its final decision. The Board relies on its Enhanced Aboriginal Engagement (EAE) initiative and its hearing process so that its records are as complete as possible.

Prior to filing a project application, proponents are required by the Board's Filing Manual to identify, engage and consult with potentially affected Aboriginal groups. Proponents are further required to report on these activities, and to provide a description of any unresolved concerns as part of the project application. Aboriginal groups are encouraged to engage with proponents so that their concerns may be identified early with, perhaps, a greater chance for concerns to be potentially resolved before the application is filed.

The Board's EAE process aims to provide proactive contact with Aboriginal groups that could be affected by a proposed project and helps Aboriginal groups understand the Board's regulatory process. The Board reviews the completeness of the list of potentially affected Aboriginal groups identified in the proponent's Project Description filed with the MPMO. The Board may suggest to the proponent any necessary revisions. The Board then sends letters to each potentially impacted Aboriginal group on the revised list, informing them of the project as well as the Board's regulatory role in respect of the project, and offers to provide further information on the hearing process. Following issuance of the letters, Board staff respond to questions or conduct information meetings, where requested.

The Board encourages Aboriginal groups with an interest in a project to participate in the hearing process in order to make the Board aware of their views and concerns. There are various ways for Aboriginal groups to make their views known directly to the Board. This can include a letter of comment, oral statements, written evidence, oral testimony by elders and members of Aboriginal groups, cross-examination of the project proponent and other parties, and final argument.

For the Horn River Project, the NEB carried out its EAE work between the receipt of the Project Description in May 2009 and the receipt of the Project Application in February 2010. The Dene Tha' First Nation (DTFN) and the Métis Nation of Alberta – Zone 6 (MNA – Zone 6) requested, and were provided, further information related to the Board's hearing process.

6.2 Aboriginal Engagement by NGTL

NGTL's primary goals for its Aboriginal engagement process for the Project were to:

- identify and consider, in planning the Project and in developing mitigation measures, the potential effects of the Project on the current use of the lands for traditional activities;
- identify and consider, in planning the Project and in developing mitigation measures, sites of cultural and historical importance to Aboriginal people that may be affected by the Project;
- obtain local and traditional knowledge relevant to the Project; and
- develop and enhance long term relationships with Aboriginal communities.

NGTL began its Aboriginal engagement for the Project in the fall of 2008 by researching the proximity of the Project area to reserves and other lands designated as future reserves, Métis settlements and communities, and areas of traditional use. Potentially affected Aboriginal groups were identified using publicly available information, NGTL's own existing Aboriginal engagement data, and consultations with provincial and federal agencies.

NGTL noted that the Project would be located within lands encompassed by Treaty 8, but would not cross any reserves or lands that have been designated for reserve status. The Project would cross lands currently used by Aboriginal people for traditional purposes and be located in proximity to Aboriginal communities that may have an interest in environmental and socio-economic matters.

NGTL engaged in Project discussions with the following Aboriginal groups:

- Fort Nelson First Nation (FNFN)
- Dene Tha' First Nation
- Prophet River First Nation (PRFN)
- West Moberly First Nation (WMFN)
- Treaty 8 Council of Northeast British Columbia
- Fort Nelson Métis Society
- Métis Nation of Alberta – Zone 6

NGTL employed a number of communication methods for its Aboriginal engagement including mail-outs, emails, telephone calls, and community meetings. NGTL provided Project information to Aboriginal groups including photo mosaics of the proposed route and the planning, regulatory and construction schedules for the Project. The Aboriginal groups were advised of the anticipated date for the filing of the Application. NGTL also maintained engagement logs for those Aboriginal groups that expressed an interest in the Project.

NGTL confirmed that, should the proposed Project be approved, it would continue to follow its Aboriginal engagement process during construction. NGTL further confirmed that for the operations phase of the Project, it would adopt TransCanada's IPA Program to continue

Aboriginal engagement activities, and that it would consider any additional mitigation measures resulting from those engagement activities.

6.3 Participation of Aboriginal Groups in Regulatory Process

No Aboriginal groups registered as Intervenors for the GH-2-2010 hearing process and while one letter of comment was received from the East Prairie Métis Settlement, it was subsequently withdrawn. No other letters of comment or requests to make an oral statement were received from Aboriginal groups.

6.4 Impacts of the Project on Aboriginal People

As part of its Aboriginal engagement activities, NGTL undertook traditional land use (TLU) studies for the purposes of identifying traditional land and resource use issues or concerns relating to the Project. TLU studies were undertaken with the participation of three Aboriginal groups: PRFN, FNFN and DTFN. The FNFN and DTFN elected to complete separate TLU studies for the Project, while PRFN worked with NGTL and its consultants. The findings of each study were compiled into a comprehensive TLU study report. The TLU studies obtained feedback from Aboriginal groups as to how the Project could affect the use of land for traditional purposes.

The FNFN TLU study identified a number of cabins adjacent to the Footprint and the DTFN TLU study identified a medicinal plant gathering site in the Metlahdoa Creek area and fishing sites at Courvoisier Creek and the Sahtaneh River. No Project-related mitigation was identified as being necessary for these areas. No habitation or plant harvesting sites, and no hunting, fishing, trapping, or gathering areas were identified as requiring site-specific mitigation by the PRFN, FNFN or DTFN.

NGTL submitted that it discussed potential mitigation measures with Aboriginal communities where the Project had the potential to affect the use of land for traditional purposes. NGTL further submitted that it was not made aware of any site-specific concerns for which there was no mitigation proposed.

NGTL noted that Aboriginal groups identified several Project-related concerns during NGTL's Aboriginal engagement and consultation process: economic opportunities and benefits, trapper notification, effects on boreal woodland caribou, Cabin Lake water use and the temporary water supply pipeline, watercourse crossing methods, and Aboriginal participation in monitoring programs. These concerns are discussed in the following sections of this chapter.

6.4.1 Economic Opportunities and Benefits

As a result of communications with the Aboriginal communities and other stakeholders, NGTL determined that there is a collective interest in seeing the timber resources from the Project used locally to the extent practicable and to reduce the amount of timber to be disposed of by burning. NGTL indicated that it has entered into discussions with FNFN and Aboriginal businesses, along with other local stakeholders, about the potential use of merchantable coniferous timber for the Joshua Project, a community-based initiative coordinated by FNFN.

NGTL noted that Eh-Cho-Dene Enterprises, an Aboriginal business based in Fort Nelson, requested that NGTL commence advance clearing of the Komie East Extension and the Project construction camp site in the winter of 2010/2011 to allow for additional Aboriginal business and employment opportunities. In response to this request, NGTL filed an application under Section 58 of the NEB Act. NGTL's application is further addressed in Chapter 9.

NGTL stated that it negotiated a 10-year agreement with FNFN that identifies economic and capacity development programs for the FNFN. NGTL also negotiated a Community Cooperation Protocol Agreement with the DTFN which includes a project referral process for facilitating reviews of proposed projects in DTFN traditional territory. NGTL also noted that the Application included a letter of support for the Horn River Project from the DTFN.

6.4.2 Trapper Notification

NGTL consulted with FNFN and DTFN trappers that hold registered trap lines in the Project area. The trappers indicated that trapping in the Project area is mainly for personal use. The PRFN does not have registered trappers within the Project area.

In order to minimize the adverse effects of the Project on area trappers, NGTL committed to engaging local trappers should any beaver dams need to be removed and to establishing and implementing a Trapper Compensation Plan for the Project. NGTL also committed to providing registered trappers with notification of the Project construction schedule at least two weeks prior to construction start-up.

6.4.3 Boreal Woodland Caribou

The WMFN and DTFN expressed concerns about the effect of the Project on boreal woodland caribou and their habitat. In addition to mitigation measures such as encouraging rapid regeneration of natural vegetation, and use of brush control and line of sight changes to limit predator movement on the Project RoW, NGTL indicated that it had also re-routed a portion of the Cabin Section to minimize the length of pipeline traversing the West Kotcho Core caribou zone. Boreal woodland caribou is further discussed in Chapter 8 of these Reasons and in the ESR (Appendix IV).

6.4.4 Water Withdrawals and Temporary Water Supply Pipeline

NGTL submitted that the Project requires water withdrawals from Cabin Lake and the installation and removal of a temporary overland water supply line for hydrostatic testing of the new pipeline sections. The DTFN expressed concern to NGTL that the water withdrawals could have an effect on lake levels and fish populations.

NGTL acknowledged DTFN concerns regarding water withdrawals from Cabin Lake, as well as DTFN's interest in being a part of NGTL's Aboriginal monitoring program. NGTL committed to DTFN participation during the collection of the additional sampling and sharing field notes from the sampling program. NGTL's Project-specific monitoring plan would address aspects of pipeline construction and hydrostatic testing, and also address Aboriginal community representation and the scope of their involvement.

6.4.5 Watercourse Crossing Methods

In consultations with NGTL, both DTFN and FNFN indicated a preference that NGTL use horizontal directional drilling (HDD) for crossing watercourses. NGTL stated that, due to the logistics of using HDD and the limitations of the watercourse characteristics, HDD would not be feasible. NGTL committed to include Aboriginal community members in monitoring select watercourse crossings during construction.

6.4.6 Aboriginal Participation in Monitoring Programs

If important sites of interest are identified during the pre-construction field studies for the Project, NGTL committed to having an Aboriginal monitor on-site to observe any mitigation measures that are implemented and, if required, to report back to the Aboriginal group's land department. Construction activities that could have an Aboriginal monitor onsite include: watercourse crossings (e.g., water quality monitoring, erosion control), beaver dam removals, previously-determined sites of interest (e.g., game trails), temporary overland water supply pipeline, and Cabin Lake water withdrawals during hydrostatic testing of the pipeline.

Views of Parties

No parties to the proceeding raised any concerns about NGTL's Aboriginal engagement and consultation program, or about potential impacts of the Project on Aboriginal groups. No concerns were raised in letters of comment submitted during the course of the proceeding.

Views of the Board

The Board is satisfied that potentially affected Aboriginal groups were provided with information about the Project and that these groups had sufficient opportunity to make their views known to NGTL and the Board. The Board notes that, should the Project be approved, NGTL committed to implementing TransCanada's IPA Program in order to continue Aboriginal consultation and engagement activities.

The Board notes that NGTL has used a number of methods to consult with Aboriginal groups in the Project area, including entering into long-term agreements which support economic development. In the Board's view, these efforts are indicative of NGTL's commitment to establishing a long-term, collaborative relationship with Aboriginal groups in the Project area.

The Board is of the view that NGTL's consultation program and the TLU studies undertaken for the Project were effective in identifying potential impacts of the Project on participating Aboriginal groups and in developing appropriate mitigation measures.

In addition to the mitigation proposed by NGTL, the Board also notes NGTL's commitments to consult with trappers regarding the construction schedule, and to consult with Aboriginal groups regarding water withdrawals from Cabin Lake, watercourse crossing monitoring and the

Aboriginal monitoring program. Finally, the Board notes NGTL's commitment to continue consulting with interested Aboriginal groups and to consider any additional mitigation measures resulting from those consultations.

The Board notes NGTL's commitment to work with local and Aboriginal businesses to facilitate the local use of merchantable coniferous timber, as well as its attempts, where feasible, to involve local and Aboriginal businesses in clearing and construction activities for the Project.

The Board recognizes the concern of Aboriginal groups regarding boreal woodland caribou. The Board notes that boreal woodland caribou is listed as Threatened on Schedule 1 of the *Species at Risk Act*. As a result of these considerations, as well as the considerations discussed in the ESR for the Project and in Chapter 8 of these Reasons for Decision, the Board would impose additional requirements for mitigation and monitoring of boreal woodland caribou habitat. See Chapter 8 and Appendix II for further details.

Given the above reasons, the Board is of the view that the Project would not negatively impact the use of lands and resources for traditional purposes.

Chapter 7

Land Matters

The Board requires applicants to provide a description and rationale for the proposed general routing of a pipeline, the location of associated facilities and the permanent and temporary lands required for a project. The Board also requires a description of the land rights to be acquired, as well as the land acquisition process and the status of land acquisition activities.

7.1 Route Selection

Views of NGTL

NGTL submitted that the total length of the new pipeline RoW required for the Project is approximately 74.2 km, and that the RoW is entirely located on BC Crown land. The Cabin Section pipeline is 72 km in length and the Komie East Extension pipeline is 2.2 km in length (see Figure 1-1).

NGTL submitted that the Komie East Extension does not cross any watercourses or environmentally sensitive areas, and that the Cabin Section route encounters less muskeg and discontinuous permafrost, fewer watercourse crossings and fewer road crossings than any of the alternate route options.

NGTL further submitted that it had initially identified five possible route options for the Cabin Section, taking into account the fixed end locations of the pipeline, existing linear infrastructure, previously cleared areas, watercourse crossings and environmentally sensitive areas. NGTL consulted with potentially affected stakeholders, Aboriginal groups and government authorities such as the BC Ministry of the Environment (BC MOE) about the routing options for the Cabin Section. NGTL indicated that the BC MOE preferred to reduce the length of pipeline within the West Kotcho Core caribou zone. NGTL selected the Option B Komie Road Route as the preferred route since it minimizes disturbance through the West Kotcho Core and met NGTL's route selection criteria considerations.

7.2 Land Requirements

Views of NGTL

The Cabin Section would require approximately 72 km of new RoW between the Sierra meter station at the west end of the existing Ekwan Pipeline and the Cabin meter station adjacent to the Encana Cabin Gas Plant. The Komie East Extension would require approximately 2.2 km of new RoW from the Cabin Section to the Komie East meter station, adjacent to the Westcoast Fort Nelson North Gas Plant.

NGTL stated that it requires permanent RoW varying in width from 18 m to 26 m for the Cabin Section and Komie East Extension. NGTL also indicated that temporary work space would be required adjacent to the permanent RoW to support construction activities and for the storage of

pipeline materials. This would result in a total pipeline construction footprint up to 32 m in width. In addition, an area of approximately 18 hectares would be required for the Project construction camp site. NGTL submitted that, following the construction phase, the land cleared for the construction camp would be used for maintenance and future operations.

7.3 Land Acquisition Process

Views of NGTL

All permanent and temporary land areas required for the Project are on BC Crown lands. In BC, companies that require Crown lands for the purposes of constructing and operating their pipelines must apply to the BC Integrated Land Management Bureau, which oversees the granting of interests in land that are either permanent or temporary in nature. NGTL submitted that the land acquisition process for the Project commenced in the first quarter of 2010 and would be completed by the second quarter of 2011.

Views of Parties

No party raised concerns about NGTL's route selection, land requirements or land acquisition process for the Horn River Project.

Views of the Board

The Board acknowledges NGTL's efforts to, as part of the route selection process through the West Kotcho Core caribou zone, consult with BC MOE and FNFN to identify concerns, minimize impacts and select a route that utilized, where possible, previously disturbed lands.

The Board finds the route selection process applied by NGTL to be reasonable given the nature and setting of the Project. The Board also finds that NGTL's anticipated permanent and temporary land requirements are reasonable and justified. The land acquisition process proposed by NGTL is also acceptable to the Board.

Chapter 8

Environment and Socio-Economic Matters

The Board considers environmental and socio-economic matters under both the CEA Act and the NEB Act. The Board requires applicants to identify the effects a project may have on bio-physical and socio-economic elements, the mitigation to reduce those effects and the significance of any residual effects once the mitigation has been applied.

This chapter summarizes the EA process used by the NEB in evaluating the Project. It also addresses socio-economic issues not assessed under the CEA Act.

8.1 Environmental Screening Process

The Horn River Facilities would require a Certificate under section 52 of the NEB Act, which triggers the requirement for an EA under the CEA Act. Since the Horn River Facilities require less than 75 km of new RoW, as defined in the CEA Act *Comprehensive Study List Regulations*, the Horn River Facilities are subject to a screening level assessment under the CEA Act.

An environmental assessment of the Ekwan Pipeline was carried out by the Board as part of the GH-1-2003 proceeding.

Pursuant to the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*, the NEB coordinated the involvement of the Responsible Authorities (RAs) and Federal Authorities (FAs) in the CEA Act EA conducted within the NEB hearing process. Transport Canada (TC) and the NEB are RAs and Environment Canada (EC), Fisheries and Oceans Canada, Health Canada and Natural Resources Canada are FAs.

The Board issued a Draft ESR on 9 December 2010 for a two week public comment period. The Board received comments from NGTL on 17 December and from EC and TC on 22 and 23 of December 2010, respectively. The final ESR reflects comments received during the public comment period and the Board's assessment of the bio-physical and socio-economic effects of the Horn River Facilities and mitigation measures. It also includes an evaluation of the likelihood of significance for any adverse effects. The ESR includes recommendations for conditions to be included in any Board regulatory approval.

Views of the Board

With respect to its regulatory decision under the NEB Act, the Board has considered the CEA Act ESR and the recommendations included therein.

The Board determined in the ESR that, with the implementation of NGTL's environmental protection procedures and mitigation measures and the Board's recommendations, the proposed Horn River Facilities are not likely to cause significant adverse environmental effects. In the event

that the Horn River Facilities are approved, the Board would convert the recommendations contained in the ESR into conditions of approval.

For details regarding the Board's assessment of the environmental and socio-economic effects evaluated pursuant to the CEA Act, see the ESR (Appendix IV of these Reasons for Decision). Copies of the ESR are available in the NEB library or on-line within the Board's Regulatory Documents at www.neb-one.gc.ca.

8.2 Cumulative Effects

In its Draft ESR, the Board recommended that any Board approval include conditions requiring NGTL to file an updated CPP and a CHRP. The Board also recommended the inclusion of a condition requiring NGTL to file a plan which describes measures to offset unavoidable and residual impacts to boreal woodland caribou habitat identified by NGTL within the Footprint[6] for the Horn River Facilities. The Board received comments from NGTL and EC regarding these recommendations.

This section addresses the recommendations relating to boreal woodland caribou habitat and the cumulative effects assessment carried out by NGTL for the Horn River Facilities, as well as the comments received by the Board in respect of both matters.

Views of NGTL

NGTL stated that the cumulative effects assessment for the Horn River Facilities focused on:

- projects or activities that have been already built or conducted in the Local Study Area (LSA), or Regional Study Area (RSA)[7];
- projects or activities that are under construction or are being conducted; and
- projects that have been proposed (i.e. that have been announced publicly) and/or have been approved to be built in the next two years, but not yet built in the LSA or RSA.

In response to EC's comments regarding its cumulative effects assessment, NGTL stated that the inclusion of probable development scenarios over a five- to 20-year time horizon was well beyond the scope of the cumulative effects assessment required under the CEA Act and the NEB Filing Manual. For this reason, NGTL indicated that the cumulative effects assessment did not include hypothetical development scenarios. NGTL was of the view that such scenarios would be more applicable to a cumulative effects assessment for regional resource management planning purposes under the direction of government authorities responsible for the area.

In addition to NGTL's agreement to file an updated CPP and CHRP for the Horn River Facilities, NGTL also acknowledged that other opportunities should be employed to address

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6 The Footprint for the Horn River Facilities is made up of the area directly disturbed by the construction and clean-up activities, including associated physical works and activities.

7 The Local Study Area is a 2 km band centred on the Cabin Section, Komie East Extension, new and modified meter stations and the construction campsite. The Regional Study Area is an area which extends beyond the LSA boundary and includes the Cabin Section, Komie East Extension, temporary hydrostatic test water supply line, construction campsite and the Cabin, Komie East and Sierra meter stations. The Little Hay Creek and Ekwan meter stations are not included in the Project RSA.

unavoidable and residual impacts to boreal woodland caribou habitat. However, NGTL was of the view that such opportunities should not be interpreted to require habitat compensation, terrestrial no-net-loss measures or the regional application of mitigation strategies. NGTL also noted that offset measures outside the Footprint of the Horn River Facilities would be complex and require direction from the appropriate regulatory authorities related to land ownership, permit requirements and land use.

NGTL further submitted that with respect to an offset plan for boreal woodland caribou habitat, the Board should not assume that residual effects will occur as predicted. Given that the RoW for the Horn River Facilities takes advantage of what is considered compromised and non-functional boreal woodland caribou habitat, NGTL proposed that any compensation measures imposed by the Board should be based on an assessment of the actual residual effects to boreal woodland caribou habitat rather than the predicted effects.

NGTL also noted that any requirement to demonstrate its involvement in the development of caribou recovery plans should recognize that NGTL does not control the development of these plans and may not be invited to participate in their development.

Views of EC

EC noted that NGTL's cumulative effects assessment for the Horn River Facilities did not include probable development scenarios for the HRB. EC was of the view that consideration of likely development scenarios, including potential well densities, supporting infrastructure (both exploratory and production), and their associated anticipated effects assessed over a five- to 20- year time horizon would provide for a robust cumulative effects assessment for the Horn River Facilities.

EC commented that it is currently developing a national recovery strategy for boreal woodland caribou and that it will post the proposed strategy on the Species at Risk Registry for comment in the summer of 2011. EC was of the view that while this national recovery strategy was being developed, appropriate steps should be undertaken to avoid, reduce and mitigate likely adverse environmental effects on boreal woodland caribou and that one such step would be through the implementation of measures undertaken as part of an offset plan.

Views of the Board

The Board is of the view that the cumulative effects assessment submitted by NGTL is sufficient to enable the Board to reach its determination of significance under the CEA Act, and is adequate in relation to the scope and setting of the Horn River Facilities. The Board continues to be concerned about the potential impact of the Horn River Facilities on boreal woodland caribou habitat. As a result, in its ESR, the Board recommended that any Board approval include conditions requiring NGTL to file an updated CPP, a CHRP and a plan which describes measures to offset unavoidable and residual impacts to boreal woodland caribou habitat within the Footprint of the Horn River Facilities.

The Board has determined that the offset measures described in the recommended plan are more appropriately based on potential unavoidable and residual impacts of the Horn River Facilities. Unavoidable and residual impacts may persist over a longer period of time, beyond the construction phase and initial years of operation. Therefore, it is uncertain that such impacts will be determinable within the timeframe NGTL would be required to file the plan or the status report on the implementation of the plan.

The Board notes that NGTL agreed that other opportunities should be employed to address unavoidable and residual effects to boreal woodland caribou habitat. However, NGTL did express concern regarding the interpretation of the term "offset". For the purposes of the Horn River Facilities, the Board has decided to limit the scope of the term "offset" so that it does not include actions that require land acquisition, replacement or substitution of habitat, habitat compensation, terrestrial no-net-loss measures or the regional application of mitigation strategies.

The Board is of the view that offset measures could include contributing to research activities which address data deficiencies and scientific uncertainties related to caribou ecology, or supporting activities relating to the conservation, mitigation and restoration of caribou habitat. Offset measures could also include participating in the development of provincial and federal recovery strategies and action plans for boreal woodland caribou, such as the national recovery strategy, which will be posted by EC on the Species at Risk Registry in the summer of 2011. The Board recognizes that NGTL does not control the development of provincial and federal strategies and action plans. However, the Board expects NGTL to make every effort to involve itself in any such initiatives where possible.

As indicated in the ESR, taking into account the Board's proposed recommendations for boreal woodland caribou habitat and the mitigation measures proposed by NGTL, the Board is of the view that the cumulative effects of the Horn River Facilities on boreal woodland caribou habitat are not likely to be significant.

8.3 Socio-Economic Matters

The Board expects companies to identify and consider the impacts that projects may have on socio-economic conditions, including the mitigation of negative impacts and the enhancement of project benefits. As mentioned above, potential socio-economic effects covered by the CEA Act are included in the ESR. The CEA Act contemplates indirect socio-economic effects caused by a change to the environment as a result of a Project. Direct socio-economic effects that may result from the Project are assessed under the NEB Act and are discussed below.

8.3.1 Infrastructure and Services

Views of NGTL

NGTL indicated that local traffic patterns, movements and volumes would be altered during construction of the Project. NGTL further submitted that most of the increased construction traffic volume would occur during the winter and would not conflict with outdoor recreation and tourism activities in the area or with the scheduled upgrading of the Sierra-Yoyo-Desan (SYD) resource road.

NGTL noted that both the FNFN and DTFN expressed concerns about traffic safety on the resource roads in the HRB, including the SYD resource road. NGTL committed to use multi-passenger vehicles and to obey traffic, road-use and safety laws in order to address safety and traffic concerns. NGTL also committed to signing road use agreements with road tenure holders and to provide local officials with the construction schedule for the Project.

NGTL further noted that the DTFN also expressed the concern that, although new access roads for the Project make it easier to access hunting, fishing and trapping areas, they would be detrimental to wildlife. NGTL stated that there would be no new permanent access roads constructed for the Project.

NGTL stated that some stakeholders expressed concern about pipeline safety and the sufficiency of the capacity of local emergency services. In order to address concerns, NGTL committed to specific pipeline safety measures during construction, including the implementation of emergency response, spill contingency and fire contingency plans. NGTL stated that despite these measures, incidents during the construction phase of the Project may arise in which emergency services are required (e.g., ambulance, fire, police and hospital). NGTL was of the view that the Northern Rockies Regional Municipality (NRRM) has the emergency response services capacity to respond to situations that may arise during construction.

8.3.2 Employment and Economy

Views of NGTL

NGTL submitted that the Project is expected to result in positive impacts on employment and the local economy. The Project is expected to result in the creation of 1,621 person years in direct and indirect jobs and generate $107.5 million in employment income. NGTL indicated that $38.3 million in annual tax revenues from the Project would accrue to federal, provincial and municipal governments.

NGTL noted that the NRRM requested that NGTL notify local businesses regarding the use of merchantable and non-merchantable timber removed from the Project RoW and facility sites. NGTL submitted that it has had discussions with several stakeholder groups, including the NRRM, about potential options for the use of merchantable timber, and that it anticipates that local companies could utilize merchantable coniferous timber from the Project. NGTL has committed to continue to work with these local groups to identify and encourage the use of local forest resources.

NGTL noted that Aboriginal and non-Aboriginal businesses have expressed a desire to benefit from the development which is occurring in the HRB. NGTL indicated that, where possible, contracting opportunities would be made available to qualified local contractors.

In response to discussions with the Fort Nelson Forestry Roundtable Committee (FNFRC) and Eh-Cho-Dene Enterprises, NGTL filed an application under section 58 of the NEB Act, requesting an exemption from the requirement in the NEB Act to file a Plan, Profile and Book of Reference (PPBoR) in relation to the Project construction camp and the Komie East Extension. NGTL submitted that if the Board granted this request, it would have the ability to conduct clearing and construction activities in the winter of 2010/2011, therefore expanding the opportunity for local contractors to participate in clearing of the RoW. NGTL further submitted that, if clearing and construction took place only in the winter of 2011/2012, it would be necessary to augment the Project workforce with non-local workers.

Views of the Parties

In a letter of comment to the Board, the FNFRC and Eh-Cho-Dene Enterprises stated that there would be additional economic benefits to local communities and workers if RoW and facility site clearing for the Project could commence in the winter of 2010/2011.

Views of the Board

The Board notes that, with respect to infrastructure and services, NGTL committed to responding to stakeholder concerns regarding impacts on traffic, road safety, access roads, emergency response measures and emergency services delivery.

The Board acknowledges NGTL's evidence regarding the positive economic effects of the Project and supports NGTL's intention to provide, where possible, local and Aboriginal employment and business opportunities. The Board is encouraged by the efforts of NGTL to accommodate, to the extent possible, local use of the timber removed from the pipeline RoW and its commitment to ongoing discussions on these matters. Regarding the economic effects of the clearing activities proposed for the winter of 2010/2011, the Board's consideration of NGTL's application pursuant to section 58 is discussed in Chapter 9.

The Board is satisfied that NGTL has identified, considered and responded to all the socio-economic aspects of the Project and has proposed suitable mitigation. The Board is satisfied that the Project would provide positive economic benefits and would not have a negative effect on infrastructure and service delivery in the Project area.

Chapter 9

Section 58 Activities

On 29 September 2010, NGTL filed an application pursuant to section 58 of the NEB Act, requesting that the Board exempt it from the requirements of section 33 of the NEB Act for the clearing and construction of the Komie East Extension and the Project construction camp site during the 2010/2011 winter season (the Section 58 Activities).

Views of NGTL

NGTL submitted that if the Section 58 Activities commenced in June 2011, as originally described in its Application, trenching and pipe-laying would have to be completed in early spring 2012 for commercial operations to commence 1 May 2012. NGTL stated that, due to the short timeframe for RoW clearing in advance of pipe-laying activities, the local workforce would have to be augmented by labour resources from outside the Project area.

During NGTL's consultations, several groups expressed concern that contracting benefits available to local contractors would be limited because clearing and construction would take place only during the winter of 2011/2012. NGTL was of the view that if clearing and construction activities were commenced in the winter of 2010/2011, local Aboriginal forestry companies and Fort Nelson area residents would have more of an opportunity to access a larger share of clearing activity.

NGTL noted that the Komie East Extension and the Project construction camp are located entirely on provincial Crown lands. According to NGTL, the BC Integrated Land Management Bureau has no objection to the Section 58 Activities. NGTL also stated that by commencing the Section 58 Activities in the winter of 2010/2011, its construction schedule would be unlikely to overlap with the restricted migratory bird breeding season (1 May to 31 July).

Views of Parties

The FNFRC and Eh-Cho-Dene Enterprises filed letters of comment with the Board which indicated that, in their view, greater local benefits would result if the Section 58 Activities took place in the winter of 2010/2011. The timing proposed by NGTL with respect to the Section 58 Activities would allow local contractors to participate in Project clearing activities over two winter seasons.

Views of the Board

The Board has considered NGTL's submissions as well as the letters of comment received in respect of this matter. The Board notes NGTL's submission that the Section 58 Activities take place entirely on provincial Crown land, and that the BC Integrated Land Management Bureau has no objection to the Section 58 Activities. The Board further notes the letters of comment received from the FNFRC and Eh-Cho-Dene Enterprises

which support the Section 58 Activities. The Board is therefore of the view that it is in the public interest to grant NGTL's application for the Section 58 Activities.

Should the Project be approved, NGTL will be exempted, pursuant to section 58 of the NEB Act, from the requirement to file a PPBoR for the Section 58 Activities. The Board will issue an order exempting NGTL from subsections 31(c), 31(d) and section 33 of the NEB Act, which will take effect should a Certificate be issued for the Horn River Project.

If the Project is approved, the Board would also impose conditions related to the Section 58 Activities. These conditions would require NGTL to submit an EPP (Condition 5), a Security Management Plan (Condition 6), and a Construction Safety Manual (Condition 7). NGTL would also be required to collect operational data during the Section 58 Activities to quantify greenhouse gas (GHG) emissions (Condition 8). Conditions relating to the Section 58 Activities are included in Appendix II.

Chapter 10

Encana Ekwan Pipeline Purchase

As part of its Application, NGTL requested leave, pursuant to section 74 of the NEB Act, to acquire the Ekwan Pipeline Assets, which Encana Ekwan currently operates pursuant to Certificate GC-108. NGTL also requested that the Board issue a Certificate of Public Convenience and Necessity for NGTL's operation of the Ekwan Pipeline Assets, effective on the closing of the Ekwan Transfer Agreement. In addition, NGTL requested that the Board authorize NGTL, pursuant to section 59 of the NEB Act, to include the purchase price of the Ekwan Pipeline Assets plus adjustments in the Alberta System rate base.

On 19 February 2010, Encana Ekwan and Encana applied separately to the Board for leave to transfer the Ekwan Pipeline Assets from Encana Ekwan to Encana, and for Encana to sell the Ekwan Pipeline Assets to NGTL. This application was considered by the Board in a separate proceeding.

The Ekwan Pipeline connects with the Alberta System's NWML at the existing Ekwan meter station in northwest Alberta and extends westward into BC to Encana's existing Sierra Gas Plant. The Sierra meter station would be located at the west end of the Ekwan Section and connect with the Sierra Gas Plant, as depicted in Figure 4-1.

Views of NGTL

When developing a proposed extension of the Alberta System to the HRB, NGTL identified the Ekwan Pipeline as a potential facility that could interconnect the Cabin Section with the Alberta System's NWML. After considering options such as arranging for transportation service on the Ekwan Pipeline, building a new pipeline or acquiring the Ekwan Pipeline Assets from Encana, NGTL selected the acquisition as its preferred option.

The Ekwan Pipeline Assets consist of 83.2 km of 610 mm (NPS 24) pipeline, related pipeline facilities, and associated land rights. NGTL proposed to acquire the Ekwan Pipeline Assets pursuant to the Ekwan Transfer Agreement, dated 2 November 2009. The closing date for the Ekwan Transfer Agreement is 30 September 2011, subject to regulatory approvals.

NGTL negotiated a purchase price for the Ekwan Pipeline Assets of $62 million plus adjustments (municipal taxes, estimated line pack of the Ekwan Pipeline) of approximately $563,000. NGTL indicated that the purchase price is approximately $20 million over the net book value of the Ekwan Pipeline Assets, and includes additional costs that Encana, or one of its subsidiaries, would incur because of the sale. The additional costs are related to tax considerations and the need for additional compression facilities on the portion of the Ekwan Pipeline that is not included in the Ekwan Transfer Agreement.

NGTL noted the cost of installing a pipeline with the same capacity as the existing Ekwan Pipeline is estimated to be $174 million. When evaluating whether to purchase the Ekwan Pipeline Assets or build a new pipeline, NGTL used an economic model to determine the

CPVCOS for both options over a 26-year period. NGTL determined that CPVCOS values for the two options were comparable but that the purchase option had the lowest initial capital cost. NGTL stated that the purchase option provides NGTL with flexibility and more time to obtain greater certainty about evolving capacity and facility requirements and allows for the ability to complete construction on a timelier basis. NGTL also stated that the purchase option reduces environmental effects, as the need for some new construction would be eliminated.

NGTL stated that the Ekwan Pipeline currently has one firm service shipper and several interruptible service shippers. These shippers hold FT-R service on the Alberta System at the Ekwan meter station. If the Project is approved, Encana Ekwan would terminate all of the transportation contracts with shippers on the Ekwan Pipeline before the closing date of the Ekwan Transfer Agreement. These shippers would then contract for FT-R service and interruptible transportation service on the Alberta System, and make deliveries to the Sierra and Little Hay Creek meter stations when they are placed in service.

NGTL advised that Encana Ekwan and NGTL have notified potentially affected commercial third parties of NGTL's proposed acquisition of the Ekwan Pipeline Assets. NGTL indicated that it is not aware of any commercial third party expressing issues or concerns about the proposed transaction since NGTL filed its Application.

Regarding WEG's submissions, NGTL acknowledged that the timing of its volume forecast may have influenced the purchase price of the Ekwan Pipeline Assets. However, NGTL argued that WEG failed to demonstrate that NGTL's forecast at the time it negotiated the purchase price of the Ekwan Pipeline Assets was unreasonable.

Views of WEG

WEG did not oppose NGTL's purchase of the Ekwan Pipeline Assets, but submitted that NGTL's economic justification for the purchase was highly dependent on its timing and volume assumptions. WEG was unable to determine from NGTL's evidence whether the purchase or the purchase price of the Ekwan Pipeline Assets was prudent.

Views of the Board

After considering the evidence provided by NGTL, the Board is satisfied that the economic justification provided by NGTL for the acquisition of the Ekwan Pipeline Assets is reasonable. The Board notes that no party opposed NGTL's acquisition of the Ekwan Pipeline Assets and that, while WEG stated that it was unable to determine whether the purchase or purchase price was prudent, WEG did not provide evidence to support their concern. Accordingly, the Board finds that leave of the Board pursuant to section 74 of the NEB Act for NGTL's purchase of the Ekwan Pipeline Assets would be in the public interest. In addition, the Board approves NGTL's request, pursuant to section 59 of the NEB Act, to include the purchase price of the Ekwan Pipeline Assets plus adjustments in the Alberta System rate base on the closing of the Ekwan Transfer Agreement.

Chapter 11

Conclusion on Public Interest and Public Convenience and Necessity

In reaching its decision, the Board has considered the evidence and submissions made by all participants to the GH-2-2010 proceeding. The Board's conclusions on individual matters which fall within the scope of the Application are contained in the preceding chapters.

The Project involves a request made pursuant to section 52 of Part III of the NEB Act, for a Certificate to construct and operate the Horn River Facilities, as well as a request to purchase pursuant to section 74 and a toll determination under section 59 of Part IV of the NEB Act. NGTL also requested an authorization for NGTL's operation of the Ekwan Pipeline Assets. In addition, NGTL requested that a portion of the Horn River Facilities be exempted, pursuant to section 58 of the NEB Act, from the requirement to file a PPBoR. While the Board has considered the individual requirements for each request it has also considered whether the Project, as a whole, would be in the public interest.

Based on all the evidence presented, the Board is satisfied that the Horn River Facilities are, and will be, required by the present and future public convenience and necessity and that approval of the Horn River Project is in the public interest.

Chapter 12

Disposition

The foregoing constitutes our Reasons for Decision in respect of the applications considered in the GH-2-2010 proceeding.

Having made its determination under the CEA Act with respect to the Horn River Facilities, consisting of the construction and operation of approximately 74 km of new pipeline and facilities, the Board approves NGTL's Application pursuant to section 52 of the NEB Act and will issue, subject to approval of the Governor in Council, a Certificate of Public Convenience and Necessity. The Certificate will be subject to the conditions set out in Appendix II.

Further, the Board grants NGTL an order, pursuant to section 58 of the NEB Act exempting the clearing and construction activities in respect of the Komie East Extension and the Project construction camp from the requirements of subsections 31(c) and 31(d) and section 33 of the NEB Act. This order will only come into effect upon the Board's issuance of the Certificate for the Horn River Project, which is subject to approval of the Governor in Council.

With respect to the purchase of the Ekwan Pipeline Assets, the Board grants NGTL leave pursuant to paragraph 74(1)(b) of the NEB Act to acquire the Ekwan Pipeline Assets in accordance with the terms and conditions set out in the Ekwan Transfer Agreement. The Board has included in the Certificate for the Horn River Project, subject to the approval of the Governor in Council, conditions related to the operation of the Ekwan Pipeline Assets which will come into effect should an order be issued by the Board amending Certificate GC-108.

Finally, the Board authorizes NGTL, pursuant to section 59 of the NEB Act, to include the purchase price of the Ekwan Pipeline Assets plus adjustments in the Alberta System rate base upon the closing of the Ekwan Transfer Agreement.

G Habib

G. A. Habib
Presiding Member

L. Mercier
Member

Calgary, Alberta
January 2011

Appendix I

List of Issues

The Board has identified but does not limit itself to the following issues for discussion in the proceeding:

1. The need for the proposed facilities.
2. The economic feasibility of the proposed facilities.
3. The potential commercial impacts of the proposed project.
4. The potential impacts of the proposed project on Aboriginal interests.
5. The potential environmental and socio-economic effects of the proposed facilities, including those to be considered under the *Canadian Environmental Assessment Act*.
6. The appropriateness of the general route of the pipeline.
7. The method of toll and tariff regulation.
8. The suitability of the design of the proposed facilities.
9. The terms and conditions to be included in any approval the Board may issue.

Appendix II

Certificate Conditions

In these conditions, the expression "commencement of construction" includes the clearing of vegetation, ground-breaking and other forms of right-of-way and site preparation that may have an effect on the environment, but does not include activities associated with normal survey operations.

In these conditions, where any condition requires a filing with the Board "for approval" that action shall not be commenced until the approval is issued.

In these conditions, the following terms have the following meanings:

Certificate of Public Convenience and Necessity GC-108 – The Certificate of Public Convenience and Necessity authorizing the construction and operation of the Ekwan Pipeline.

Ekwan Pipeline – A National Energy Board-regulated pipeline (83 km of 610 mm outside diameter pipe) extending from the existing Ekwan meter station to the Sierra Gas Plant.

Ekwan Pipeline Assets – The assets that NGTL proposes to purchase from Encana Corporation comprising most of the assets of the Ekwan Pipeline.

Footprint – The area directly disturbed by the construction and clean-up activities associated with the Horn River Facilities, including associated physical works and activities (e.g., permanent RoW, construction campsite, temporary workspace for construction, block valve and meter station sites).

Horn River Facilities – The new and modified facilities proposed for construction and operation under section 52 of the *National Energy Board Act*, specifically the Cabin Section (the pipeline section from the west end of the Ekwan Pipeline to the Cabin meter station), the Komie East Extension (the pipeline extension from the Cabin Section to the proposed Komie East meter station), the four new meter stations, and the modifications to the existing Ekwan meter station. This definition also includes the Section 58 Activities, as applied for by NGTL on 29 September 2010.

Horn River Project – The acquisition and integration of the Ekwan Pipeline Assets and the construction and operation of new and modified facilities that comprise the pipeline extension of the Alberta System from the existing Ekwan meter station to the proposed Cabin meter station.

Section 58 Activities – The proposed clearing of the Komie East Extension and the Project construction camp site, in the winter of 2010/2011.

General

1. Condition Compliance

NGTL shall comply with all of the conditions contained in this Certificate unless the Board otherwise directs.

2. Facility Design, Location, Construction, Installation and Operation

NGTL shall cause the approved Horn River Project to be designed, located, constructed, installed, and operated in accordance with the specifications, standards and other information referred to in its application or as otherwise agreed to during questioning or in its related submissions.

3. Implementation of Environmental Protection

NGTL shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures for the protection of the environment included in or referred to in its application or as otherwise agreed to during questioning or in its related submissions.

Prior to the Section 58 Activities

4. Commitments Tracking Table

NGTL shall:

a) file an updated Commitments Tracking Table with the Board 14 days prior to commencement of construction of the Horn River Facilities;

b) update the status of the commitments in a) on a monthly basis until completion of the Horn River Facilities; and

c) maintain at its construction office(s):

i) the relevant environmental portion of the Commitments Tracking Table listing all regulatory commitments, including but not limited to, those commitments resulting from NGTL's application and subsequent filings, and conditions from permits, authorizations and approvals;

ii) copies of any permits, approvals or authorizations for the Horn River Facilities issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and

iii) any subsequent variances to any permits, approvals or authorizations in ii).

5. Environmental Protection Plan for the Section 58 Activities

NGTL shall file with the Board for approval, at least 14 days prior to the commencement of the Section 58 Activities, an EPP specific to the Section 58 Activities. The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Horn River Project, subsequent filings or as otherwise agreed to during questioning, in its related submissions or through consultations with other government authorities. The EPP shall describe the criteria for the implementation of all procedures and measures, and shall use clear and unambiguous

language that confirms NGTL's intention to implement all of its commitments. The EPP shall also include:

a) measures arising from additional studies conducted in winter and summer 2010, supplemented with updated Environmental Alignment Sheets; and

b) a Weed Management Plan for the Section 58 Activities, including evidence demonstrating consultation with appropriate local, provincial and federal government authorities, Aboriginal groups and the Fort Nelson Invasive Plant Management Area Steering Committee (FNIPMASC) regarding weed control, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

6. Security Management Plan for the Section 58 Activities

NGTL shall file with the Board, at least 14 days prior to the commencement of the Section 58 Activities, a Security Management Plan for the Section 58 Activities pursuant to NEB Proposed Regulatory Change 2006-01, Pipeline Security Management Program.

7. Construction Safety Manual for the Section 58 Activities

NGTL shall file with the Board, at least 14 days prior to the commencement of the Section 58 Activities, a Construction Safety Manual for the Section 58 Activities.

8. Greenhouse Gas Assessment for the Section 58 Activities

NGTL shall collect operational data during the Section 58 Activities to quantify greenhouse gas (GHG) emissions. The data shall be included in the updated GHG Assessment Report in Condition 23.

Prior to construction of any of the Horn River Facilities (including clearing or ground-breaking) other than the Section 58 Activities

9. Environmental Protection Plan

NGTL shall file with the Board for approval at least 60 days prior to the commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, an updated EPP specific for all the Horn River Facilities. The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Horn River Project, or as otherwise agreed to during questioning, in its related submissions or through consultations with other government authorities. The EPP shall describe the criteria for the implementation of all procedures and measures, and shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. The EPP shall also include measures arising from additional studies conducted in winter and summer 2010 and spring 2011, supplemented with updated Environmental Alignment Sheets. In addition, the EPP shall include but not be limited to:

a) a Weed Management Plan including evidence demonstrating consultation with appropriate local, provincial and federal government authorities, Aboriginal groups and the FNIPMASC;

b) temporary workspace requirements within riparian areas at watercourse crossings;

c) a detailed Water Quality Monitoring Plan for fish-bearing watercourses and non-classified drainages that includes, but is not limited to:

   i) the methodology which will be used to carry out the Water Quality Monitoring Plan;

   ii) the rationale for selection of the parameters to be monitored;

   iii) monitoring frequency and the rationale for selecting the monitoring frequency; and

   iv) evidence demonstrating consultation with appropriate provincial and federal government authorities regarding the implementation of the Water Quality Monitoring Plan with respect to i) through iii);

d) a detailed Wetland Mitigation Plan, including changes resulting from the Pre-Construction Wetland Monitoring Plan, and evidence demonstrating consultation with appropriate provincial and federal government authorities on the proposed wetland mitigation measures, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns;

e) an updated Post-Construction Monitoring Program section that reflects a timeframe based on a five-year regime as described in Condition 24;

f) an updated Contaminated Soils Management Plan that contains the specific measures and remedial actions to be followed by NGTL in the event that contaminated soils are encountered during construction;

g) an updated Caribou Protection Plan (CPP) for the Horn River Facilities within the Snake-Sahtaneh caribou range. The CPP shall include additional mitigation measures applicable to the protection of caribou or caribou habitat in the event that the British Columbia (BC) Ministry of Environment releases Regulated Operating Procedures for the oil and gas sector within Ungulate Winter Ranges and Wildlife Habitat Areas prior to the construction of the Horn River Facilities; and

h) a Caribou Habitat Restoration Plan (CHRP) for the Horn River Facilities within the Snake-Sahtaneh caribou range which is aligned with the province of BC's actions to restore boreal woodland caribou habitat. The CHRP is to be included in the updated CPP and shall include but not be limited to:

   i) identification of suitable restoration methodologies and delineation of restoration sites;

   ii) caribou habitat conservation measures, including long-term access requirements and plans for vegetation recovery within core habitats;

iii) mitigative measures designed to retain peatland/wetland habitat quality for boreal woodland caribou; and

iv) evidence of consultation with appropriate federal and provincial government authorities regarding the CHRP.

10. Vegetation and Weed Management Plan

NGTL shall file with the Board for approval, at least 60 days prior to commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, a Vegetation and Weed Management Plan for the post-construction and operational phases of the Horn River Project. This plan shall include:

a) identification of objectives for vegetation and weed management;

b) a description of NGTL's vegetation management activities including on-going clearing, reclamation, seeding and monitoring;

c) a description of NGTL's weed management activities including long term weed monitoring and control procedures and the criteria for implementing these activities;

d) training and qualification requirements of NGTL staff responsible for monitoring and reviewing reports;

e) a description of specific accountabilities NGTL staff have with regard to vegetation and weed management;

f) a mechanism for tracking weed problems and weed control activities;

g) criteria to evaluate the effectiveness of the Vegetation and Weed Management Plan as well as adaptive management practices; and

h) evidence demonstrating consultation with appropriate local, provincial and federal government authorities, Aboriginal groups, and the FNIPMASC regarding weed control, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

11. Aquatic Survey

NGTL shall file with the Board, at least 60 days prior to construction of any of the Horn River Facilities other than the Section 58 Activities, an aquatic survey for the unnamed tributary to Metlahdoa Creek (referred to by NGTL as crossing 20-WC). The survey shall include:

a) the methodology NGTL used to conduct the survey;

b) the results of the survey;

c) the timing of the crossing and the crossing method selected if the unnamed tributary is fish-bearing; and

d) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the methodology for and the results of the survey referred to in a) and b), any mitigation and monitoring to be used as a result of the survey, and a summary of any issues and concerns that were raised as well as the steps NGTL has taken or will take to address these issues and concerns.

12. Security Management Plan

NGTL shall file with the Board at least 45 days prior to the commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, a Security Management Plan for the Horn River Facilities pursuant to NEB PRC 2006-01, Pipeline Security Management Program.

13. Construction Safety Manual

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, a Construction Safety Manual for the Horn River Facilities.

14. Heritage Resources

NGTL shall file with the Board, at least 30 days prior to commencement of construction of any of the Horn River Facilities other than the Section 58 Activities:

a) a copy of the letter of clearance received under the BC *Heritage Conservation Act*;

b) all comments and recommendations received from the BC provincial authorities regarding the Supplemental Archaeological Impact Assessment; and

c) the mitigation measures that NGTL proposes to address the comments and recommendations in b).

15. Joining Program and Field Pressure Testing Program

NGTL shall file with the Board, the following programs within the time specified:

a) a field joining program, 14 days prior to joining; and

b) a field pressure testing program, 14 days prior to pressure test.

16. Construction Schedule

NGTL shall, at least 14 days prior to the commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, file with the Board a detailed construction schedule(s) identifying major construction activities for the Horn River Facilities and shall notify the Board of any modifications to the schedule(s) as such modifications occur.

During Clearing or Construction Activities

17. Migratory Birds

Where NGTL cannot avoid conducting clearing or construction activities within the restricted migratory bird breeding season NGTL shall:

a) retain a qualified avian biologist to implement an Active Migratory Bird Nest Survey (AMBNS) program to identify any migratory birds and active nests in areas immediately surrounding the site and reduce the likelihood of disturbing or destroying active nests prior to commencement of construction activities in the migratory bird nesting period;

b) file the results of the survey referred to in a) with the Board;

c) provide mitigation, including monitoring, developed in consultation with Environment Canada (EC) and Canadian Wildlife Service to protect any birds identified in the *Species at Risk Act* or their nests; and

d) file evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed methodology for the AMBNS, the results from the AMBNS and the mitigation and monitoring to be used, and a description of any outstanding concerns.

18. Construction Progress Reports

NGTL shall file construction progress reports with the Board on a monthly basis in a form satisfactory to the Board. The reports shall include information on the activities carried out during the reporting period, any environmental, security and safety issues and issues of non-compliance, and the measures undertaken for the resolution of each issue and non-compliance.

Prior to Application for Leave to Open

19. Pipe Manufacture and Quality Control

Thirty days prior to requesting leave to open, NGTL shall provide a list of pipe that was received from NGTL's pipe supplier(s). The list should:

a) identify each manufacturer;

b) identify a traceable number with which each pipe received by NGTL can be identified;

c) indicate whether the pipe was acceptable as received or not, and, if the pipe was not originally acceptable but later utilized, provide a list of all defects (as defined by Canadian Standards Association Z245.1 Steel Pipe), the means of fixing defects, and the source of defect (manufacturing, handling, installation).

20. Post-Construction Wetland Monitoring Plan

NGTL shall file with the Board, at least 30 days prior to requesting leave to open, a Post-Construction Wetland Monitoring Plan for the Horn River Facilities. The plan should be designed to ensure that wetland function can be restored or compensated and that "no net loss" of wetland function can be achieved. The plan shall include:

a) the methodology that will be used for monitoring;

b) the criteria established for evaluating the effectiveness of the plan;

c) an evaluation of the effectiveness of the mitigation measures applied during construction of the Horn River Facilities against the criteria referred to in b);

d) an adaptive management approach to evaluate wetland function for each year of the subsequent five years following construction; and

e) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed monitoring methodology and associated mitigation measures outlined in the plan, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

21. Post-Construction Breeding and Resident Bird Survey

NGTL shall file with the Board, no more than six months following leave to open, a breeding and resident bird use survey to be conducted in the adjacent habitat at Lichen Creek as defined in NGTL's application. The survey shall include:

a) the methodology for conducting the survey;

b) the results of the survey;

c) mitigation strategies developed in consultation with EC to protect breeding and resident birds; and

d) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed methodology for the survey referred to in a), the results from the survey and the mitigation and monitoring to be used, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

22. Measures to Offset Residual Impacts to Boreal Woodland Caribou Habitat

NGTL shall file with the Board, prior to requesting leave to open, a plan which describes measures to offset unavoidable and residual impacts to boreal woodland caribou habitat identified by NGTL within the Footprint. For the purposes of this Project, offset measures for boreal woodland caribou do not include actions that require land acquisition, replacement or substitution of habitat, habitat compensation, terrestrial no-net-loss measures or the regional application of mitigation strategies. The plan should include:

a) a description of how the results of the information collected in Condition 9(h)(i) have been used and confirmation that these results have been shared with BC MOE and EC;

b) a description of NGTL's contribution to any initiatives for caribou habitat which are currently being undertaken or planned to be undertaken in northeastern BC. Such initiatives could include research activities which address data deficiencies and scientific uncertainties related to caribou ecology or activities relating to the conservation, mitigation and restoration of caribou habitat;

c) evidence of NGTL's participation in the development of provincial and federal recovery strategies and action plans for boreal woodland caribou and in any other provincial caribou initiative in northeastern BC, including participation in regional monitoring programs; and

d) any additional measures that NGTL may identify as contributing to the plan.

Within one year following leave to open, NGTL shall submit to the Board a status report demonstrating actions undertaken with respect to the implementation of the plan. If no implementation has yet occurred, NGTL shall submit an update as to when NGTL would expect to undertake such implementation.

Post-Construction and Operations

23. Updated Greenhouse Gas Assessment Report

NGTL shall file with the Board, within six months following leave to open, an updated GHG Assessment Report which includes operational data collected during the construction of the Horn River Facilities to quantify GHG emissions. The report shall include but not be limited to:

a) the methodology used for collecting the data during the construction of the Horn River Facilities; and

b) a comparison of operational data with the estimated emissions in NGTL's Detailed Air Quality and GHG Assessment Report.

24. Post-Construction Environmental Monitoring Report

NGTL shall file with the Board, six months after the commencement of the operation of the Horn River Facilities, and on or before the 31 January for each year of the subsequent five years, a Post-Construction Environmental Monitoring Report for the Horn River Facilities that:

a) describes the methodology that will be used for monitoring;

b) describes the criteria established for evaluating the effectiveness of the monitoring;

c) evaluates the effectiveness of the mitigation measures applied during construction of the Horn River Facilities against the criteria referred to in b);

d) identifies deviations from plans and alternate mitigation applied as approved by the Board;

e) identifies locations on a map or diagram where corrective action was taken during construction and the current status of corrective actions; and

f) provides proposed measures and the schedule NGTL will implement to address any unresolved concerns.

25. Wetland Restoration and Compensation

NGTL shall consult with EC on all wetlands where wetland function has not been fully restored at the close of the five-year Post-Construction Monitoring Program, and undertake further restoration or compensation as recommended by EC, or provide a rationale for why NGTL will not abide by EC's recommendation. NGTL shall file with the Board copies of all correspondence demonstrating consultation with EC on any potential wetland compensation as part of the five-year post-construction monitoring report.

After the issuance of an order amending Certificate of Public Convenience and Necessity GC-108

26. Ekwan Pipeline Assets

Conditions 1-3 and 29, as they relate to the Ekwan Pipeline Assets, as well as Conditions 27, 28 and 31 do not take effect until the date the Board issues an order amending Certificate of Public Convenience and Necessity GC-108.

27. Vegetation and Weed Management Plan for Ekwan Pipeline Assets

NGTL shall file with the Board, within 60 days of the issuance of an order amending Certificate of Public Convenience and Necessity GC-108, a Vegetation and Weed Management Plan for the operation of the Ekwan Pipeline Assets. This plan shall include:

a) identification of objectives for vegetation and weed management;

b) a description of NGTL's vegetation management activities including on-going clearing, reclamation, seeding and monitoring;

c) a description of NGTL's weed management activities including long term weed monitoring and control procedures and the criteria for implementing these activities;

d) training and qualification requirements of NGTL staff responsible for monitoring and reviewing reports;

e) a description of specific accountabilities NGTL staff have with regard to vegetation and weed management;

f) a mechanism for tracking weed problems and weed control activities;

g) criteria to evaluate the effectiveness of the Vegetation and Weed Management Plan as well as adaptive management practices; and

h) confirmation that this plan will be integrated with the Vegetation and Weed Management Plan for the Horn River Facilities.

28. Emergency Preparedness and Response Manual

NGTL shall file with the Board, within 30 days of the issuance of an order amending Certificate of Public Convenience and Necessity GC-108, three updated copies of its Emergency Preparedness and Response Manual.

After the Horn River Project is Placed in Service

29. Condition Compliance by a Company Officer

Unless the Board otherwise directs, within 30 days of the date that the Horn River Project is placed in service, NGTL shall file with the Board a confirmation, by an officer of the company, that the approved Horn River Project was completed in compliance with all applicable conditions in this Certificate. If compliance with any of these conditions cannot be confirmed, the officer of the company shall file with the Board details as to why compliance cannot be confirmed. The filing required by this condition shall include a statement confirming that the signatory to the filing is an officer of the company.

Certificate Expiration

30. If Construction of the Horn River Facilities has not Commenced

Unless the Board otherwise directs prior to 27 January 2012, the conditions of this Certificate which relate to the Horn River Facilities, that is, Conditions 4-25 and 30, and Conditions 1-3 and 29, as they relate to the Horn River Facilities, shall expire on 27 January 2012 unless construction in respect of the Horn River Facilities has commenced by that time.

31. If the Board has not issued an order amending Certificate of Public Convenience and Necessity GC-108

Unless the Board otherwise directs prior to 27 January 2012, the conditions of this Certificate which relate to the Ekwan Pipeline Assets, that is, Conditions 26-28 and 31, and Conditions 1-3 and 29, as they relate to the Ekwan Pipeline Assets, shall expire on 27 January 2012 unless the Board has issued an order amending Certificate of Public Convenience and Necessity GC-108 by that time.

Appendix III

NEB Orders Including Schedule A

ORDER XG-N081-01-2011

IN THE MATTER OF the *National Energy Board Act* (the Act) and the regulations made thereunder;

IN THE MATTER OF an application by NOVA Gas Transmission Ltd. (NGTL), pursuant to section 58 of the Act for an exemption from section 33 of the Act for the construction camp and the Komie East Extension of the Horn River Project, filed with the National Energy Board under File OF-Fac-Gas-N081-2010-04 01

BEFORE the Board on 24 January 2011.

WHEREAS the Board received an application from NGTL dated 19 February 2010 for the Horn River Project consisting of a request for leave, pursuant to section 74 of the Act, to acquire a portion of the assets of the Ekwan Pipeline (Ekwan Pipeline Assets), for a Certificate for the construction and operation of the Horn River Facilities and for the operation of the Ekwan Pipeline Assets, and for an authorization, pursuant to section 59 of the Act, to include the purchase price of the Ekwan Pipeline Assets plus adjustments in the Alberta System rate base (the Horn River Project or the Project);

AND WHEREAS on 29 September 2010, NGTL requested additional relief, as part of the Horn River Project, for an exemption from the requirements of section 33 of the Act for a portion of the Project, specifically, the construction camp and the Komie East Extension, to enable NGTL to clear vegetation and commence construction of the Komie East Extension right-of-way and the Project construction camp site during the 2010/2011 winter season (the Section 58 Activities);

AND WHEREAS the Board held a public hearing in respect of the Horn River Project pursuant to Hearing Order GH-2-2010 and its procedural letter dated 13 October 2010;

AND WHEREAS the Board, pursuant to the *Canadian Environmental Assessment Act*, conducted an environmental screening of the Horn River Facilities, which includes the Section 58 Activities, and concluded that with the implementation of NGTL's environmental protection procedures and mitigation measures and the NEB's recommendations, the Horn River Facilities are not likely to cause significant adverse effects;

AND WHEREAS the Board approved the Horn River Project, including NGTL's application for the Section 58 Activities, in its GH-2-2010 Reasons for Decision dated January 2011;

AND WHEREAS the Board recommended to the Governor in Council on 27 January 2011 that a Certificate of Public Convenience and Necessity in respect of the Horn River Project, which includes conditions respecting the Section 58 Activities, be issued;

AND WHEREAS the Board has considered it just and proper, pursuant to section 20 of the Act, to grant such further and other relief in addition to that applied for by NGTL;

AND WHEREAS the Board may, pursuant to subsection 19(1) of the Act, direct in any order that it shall come into force at a future time or on the happening of any contingency;

IT IS ORDERED that pursuant to subsection 58(1) of the Act that the construction camp and Komie East Extension of the Horn River Project are exempted from the requirements of subsections 31(c) and 31(d), and section 33 of the Act;

IT IS FURTHER ORDERED THAT unless the Board otherwise directs, this Order shall expire on 1 April 2011 unless NGTL confirms that the Section 58 Activities have been commenced.

IT IS FURTHER ORDERED THAT, pursuant to subsection 19(1) of the NEB Act, this Order comes into force upon the issuance by the Board, subject to Governor in Council approval, a Certificate of Public Convenience and Necessity for the Horn River Project.

NATIONAL ENERGY BOARD

Anne-Marie Erickson
Secretary of the Board

MO-01-2011

IN THE MATTER OF the *National Energy Board Act* (the Act) and the regulations made thereunder; and

IN THE MATTER OF an Application, pursuant to Section 74 of the *National Energy Board Act* by NOVA Gas Transmission Ltd. (NGTL) for leave to purchase the assets proposed to be transferred from Encana Corporation (Encana) to NGTL comprising a portion of the assets of the Ekwan Pipeline filed with the National Energy Board under File OF-Fac-Gas-N081-2010-04 01.

BEFORE the Board on 24 January 2011.

WHEREAS the Board received an application dated 19 February 2010 from NGTL for the Horn River Project, consisting of a request for leave, pursuant to section 74 of the Act, to acquire a portion of the assets of the Ekwan Pipeline as described in the attached Schedule A (Ekwan Pipeline Assets), for a Certificate for the construction and operation of the Horn River Facilities and for the operation of the Ekwan Pipeline Assets, and for an authorization, pursuant to section 59 of the Act, to include the purchase price of the Ekwan Pipeline Assets plus adjustments in the Alberta System rate base (the Horn River Project or the Project);

AND WHEREAS Encana Ekwan Pipeline Inc. (Encana Ekwan) owns the Ekwan Pipeline Assets pursuant to Certificate GC-108, which was issued on 23 October 2003;

AND WHEREAS the Board received a separate application dated 19 February 2010 from Encana Ekwan and Encana, pursuant to paragraphs 74(1)(a) and 74(1)(b) of the Act, for leave to transfer the Ekwan Pipeline from Encana Ekwan to Encana, and for Encana to sell the Ekwan Pipeline Assets to NGTL (the Encana Application);

AND WHEREAS the Board held a public hearing in respect of the Horn River Project pursuant to Hearing Order GH-2-2010 and its procedural letter dated 13 October 2010;

AND WHEREAS the transfer of ownership of the Ekwan Pipeline Assets is not subject to an environmental assessment under the *Canadian Environmental Assessment Act*;

AND WHEREAS the Board's decisions in respect of the Horn River Project are set out in its GH-2-2010 Reasons for Decision dated January 2011;

AND WHEREAS on 25 January 2011 the Board approved the Encana Application;

AND WHEREAS following completion of the transaction, the Ekwan Pipeline Assets will remain under federal jurisdiction as part of the TransCanada Pipelines Limited Alberta System;

AND WHEREAS following completion of the transaction, the portion of the pipeline that continues to be owned by Encana will be subject to provincial regulation and will no longer form part of a federal work and undertaking;

AND WHEREAS the Board has considered it just and proper, pursuant to section 20 of the Act, to grant such further and other relief in addition to that applied for by NGTL;

IT IS ORDERED THAT, pursuant to paragraph 74(1)(b) of the Act, leave is granted to NGTL to purchase the Ekwan Pipeline Assets; and

IT IS FURTHER ORDERED THAT, unless the Board otherwise directs, this Order shall expire on 30 November 2011 unless NGTL confirms that the transaction has been completed.

NATIONAL ENERGY BOARD

Anne-Marie Erickson
Secretary of the Board

SCHEDULE A

National Energy Board Order MO-01-2011

NOVA Gas Transmission Ltd. (NGTL)
Application dated 19 February 2010
Pursuant to Paragraph 74(1)(b) of the *National Energy Board Act*
For Leave to Acquire the Ekwan Pipeline Assets

	Ekwan Pipeline
Construction Type	Transfer of Ownership
Length	83.15 km
Location (From BC to AB)	From: a-26-K/94-I-11 To: 15-15-111-12 W6M
Product Carried	Sweet Natural Gas
Outside Diameter	610 mm (NPS24)
Wall Thickness	7.9 mm, 11.1 mm
Grade	CSA Z245.1 Grade 483 Category II
Maximum Operating Pressure (MOP)	9930 kPa (1440 psi)

Appendix IV

Environmental Screening Report

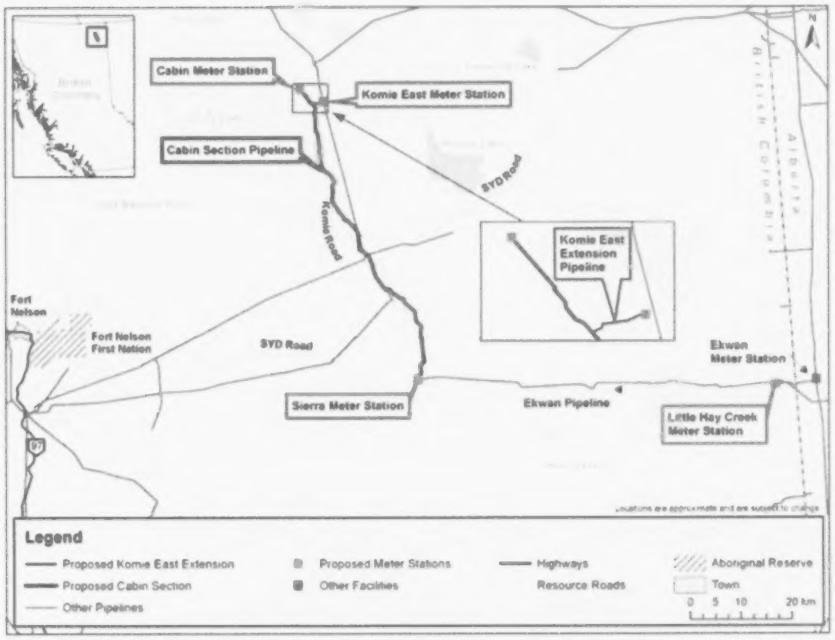
National Energy Board | Office national de l'énergie

ENVIRONMENTAL SCREENING REPORT

Pursuant to the *Canadian Environmental Assessment Act* (CEA Act)

Horn River Facilities

Applicant Name:	NOVA Gas Transmission Ltd.		
Application Date:	19 February 2010	**CEA Act Registration Date:**	2 July 2009
National Energy Board (NEB or Board) File Number:	OF-Fac-Gas-N081-2010-04 01	**Canadian Environmental Assessment Registry Number:**	09-01-48228
CEA Act Law List Trigger:	Section 52 of the *National Energy Board Act*	**CEA Act Determination Date:**	24 January 2011



Canada

SUMMARY

This report represents an Environmental Screening Report (ESR) under the *Canadian Environmental Assessment Act* (CEA Act) for the NOVA Gas Transmission Ltd. (NGTL) proposed Horn River Facilities (the Project). On 19 February 2010, NGTL applied to the National Energy Board (Board or NEB) for authorization to construct and operate the Project, a proposed extension of the NGTL Alberta System into the Horn River area of northeast British Columbia (BC).

The Project would involve the construction and operation of approximately 72 kilometres (km) of new 914 millimetre (mm) outside diameter (OD) sweet natural gas pipeline from the proposed Cabin meter station to the proposed Sierra meter station on the existing Ekwan Pipeline in BC. The Project is located approximately 70 km east of Fort Nelson, BC.

The Project would also involve the construction and operation of approximately 2.2 km of 610 mm OD sweet natural gas pipeline extending northeast from a point on the Cabin Section to the proposed Komie East meter station.

Approximately 47 km of the total new pipeline length of 74 km would consist of new non-contiguous right-of-way. Additional facilities would include four meter stations, valve sites and modifications to the piping configuration at the existing Ekwan meter station in Alberta. Some temporary infrastructure would be required for construction. In addition, electrical facilities would be needed for pipeline operations. The Project would require the crossing of several named and unnamed watercourses and drainages. Construction is proposed to begin in the first quarter of 2011 and the in-service date for the Project is the first quarter of 2012.

The NEB is the Federal Environment Assessment Coordinator for the Project. In this role, the NEB coordinates the involvement of federal departments with an interest in the Project. Transport Canada has declared itself as a Responsible Authority (RA) while Environment Canada, Fisheries and Oceans Canada, Natural Resources Canada and Health Canada have identified themselves as Federal Authorities (FAs) in possession of expert advice.

This ESR was prepared as part of the NEB's responsibilities under the CEA Act and incorporates information provided by NGTL, FAs, Aboriginal groups, other interested parties and the public. The analysis in this ESR is based on the evidence placed on the record for the public hearing process held with respect to the Project, the full documentation of which can be found at the following internet hyperlink: https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=601085&objAction=browse&sort=-name.

Comments received on the ESR were considered by the Board in its preparation of the final ESR. The ESR was issued by the Board along with its Reasons for Decision in respect of NGTL's Application. The ESR will also be used by Transport Canada in making its environmental assessment determinations during the course of the Project.

As detailed in the ESR, a number of potential adverse environmental effects of the Project, both bio-physical and socio-economic, were identified. The main areas of public concern focused on fish and fish habitat, wetlands, migratory birds, *Species at Risk Act* listed species, and air quality. The NEB is of the view that, with the implementation of NGTL's proposed environmental protection procedures and mitigation measures, the NEB's conditioning authority, and the NEB's recommendations, the Project is not likely to cause significant adverse environmental effects.

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LIST OF ABBREVIATIONS

AIA	Archaeological Impact Assessment
AIV	alternative integrity verification
Alberta System	An integrated natural gas pipeline system owned by NGTL
AMBNS	Active Migratory Bird Nest Survey
BC	British Columbia
Board or NEB	National Energy Board
Cabin Section	The approximately 72 kilometre-long, 914 millimetre outside diameter sweet natural gas pipeline from the Cabin meter station to the Sierra meter station, proposed as part of the Horn River Facilities
CACs	Criteria Air Contaminants
caribou	boreal woodland caribou
CEA Act	*Canadian Environmental Assessment Act*
CHRP	Caribou Habitat Restoration Plan
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPP	Caribou Protection Plan
DFO	Fisheries and Oceans Canada
Draft Scope	Draft Scope of the Environmental Assessment
DTFN	Dene Tha' First Nation
EA	Environmental Assessment
EAO	Environmental Assessment Office
EC	Environment Canada
EPP	Environmental Protection Plan
ESA	Environmental and Socio-Economic Assessment
ESR	Environmental Screening Report pursuant to the *Canadian Environmental Assessment Act*
FA	Federal Authority as defined in subsection 2(1) of the CEA Act
FCN	Federal Coordination Notification
Federal Coordination Regulations	The *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* made pursuant to the *Canadian Environmental Assessment Act*
FNFN	Fort Nelson First Nation
FNIPMASC	Fort Nelson Invasive Plant Management Area Steering Committee
Footprint	Footprint Study Area
GHG	greenhouse gas(es)
ha	hectare(s)
HADD	harmful alteration, disruption or destruction
HDD	horizontal directional drilling

Horn River Facilities	The new and modified facilities proposed for construction and operation under section 52 of the *National Energy Board Act*, specifically the Cabin Section (the proposed pipeline section from the west end of the Ekwan Pipeline to the Cabin meter station), the Komie East Extension (the proposed pipeline extension from the Cabin Section to the proposed Komie East meter station), the four new meter stations, and the proposed modifications to the existing Ekwan meter station, this definition also includes the Section 58 Activities as applied for by NGTL on 29 September 2010
HRB	Horn River Basin
IVMP	Integrated Vegetation Management Program
km	kilometre(s)
Komie East Extension	Approximately 2.2 kilometres of 610 millimetre outside diameter sweet natural gas pipeline, extending northeast from a point on the Cabin Section to the Komie East meter station, proposed as part of the Horn River Facilities
KP	kilometer post
LSA	Local Study Area
m	metre(s)
mm	millimetre(s)
MOE	Ministry of Environment
NCD	non-classified drainage
NEB Act	*National Energy Board Act*
NGTL	NOVA Gas Transmission Ltd.
NPS	nominal pipe size
NRRM	Northern Rockies Regional Municipality
OD	outside diameter
OGAA	British Columbia *Oil and Gas Activities Act*
PCM	post-construction monitoring
the Project	the proposed Horn River Facilities
PRFN	Prophet River First Nation
Project LSA	Local Study Area for the proposed Project
RA	Responsible Authority, as defined in subsection 2(1) of the *Canadian Environmental Assessment Act*
RoW	right-of-way
RRA	Resource Review Area
RSA	Regional Study Area
SARA	*Species at Risk Act*
Scope of EA or Scope	Scope of the Environmental Assessment

Section 58 Activities	The proposed clearing of the Komie East Extension right-of-way, the clearing of the construction camp site, and the installation of the construction camp in the winter of 2010/2011
Snake-Sahtaneh range	The Snake-Sahtaneh boreal woodland caribou range is an area within the Etsho Resource Management Zone in the Fort Nelson Land Resource Management Plan; the range provides resources necessary to support local caribou populations and includes the West Kotcho Core
TC	Transport Canada
TLU	Traditional Land Use
TransCanada	TransCanada PipeLines Limited
UWR	Ungulate Winter Range
WC	NGTL designation of specific watercourse referenced in the ESA
West Kotcho Core	the West Kotcho Core caribou zone in northeastern BC is an area of high caribou habitat capability and suitability within the Snake-Sahtaneh boreal woodland caribou range
WHA	Wildlife Habitat Area
WMFN	West Moberly First Nation

1.0 INTRODUCTION

The application for the Horn River Facilities (the Project) was filed with the National Energy Board (Board or NEB) by NOVA Gas Transmission Ltd. (NGTL) pursuant to section 52 of the *National Energy Board Act* (NEB Act) and, thus, triggers the *Canadian Environmental Assessment Act* (CEA Act) *Law List Regulations*, thereby requiring the preparation of this Environmental Screening Report (ESR). On 29 September 2010, NGTL amended its Application for the Project to include a request pursuant to section 58 of the NEB Act, to exempt NGTL from the requirements of section 33 of the NEB Act for the Komie East Extension and the construction camp site (Section 58 Activities) so that these Section 58 Activities could commence in the 2010/2011 winter season.

1.1 Project Overview

The Project consists of several pipeline components including an extension of the Alberta System from the proposed Cabin meter station to the proposed Sierra meter station (Cabin Section) on the existing Ekwan Pipeline. The Project is located approximately 70 kilometres (km) east of Fort Nelson, British Columbia (BC). The Project would also include a secondary tie-in pipeline extending northeast from a point on the Cabin Section to the proposed Komie East meter station (Komie East Extension). NGTL, a wholly owned subsidiary of TransCanada PipeLines Limited (TransCanada), is proposing to construct and operate the Cabin Section and Komie East Extension to transport sweet natural gas between the proposed transfer points.

The Cabin Section would be approximately 72 km of new 914 millimetre (mm) outside diameter (OD) pipe (nominal pipe size (NPS) 36-inches). The Komie East Extension would be approximately 2.2 km of 610 mm OD (NPS 24) pipe. Approximately 47 km of the total new pipeline length of 74 km would consist of new non-contiguous right-of-way (RoW), including both the Cabin Section and Komie East Extension.

Additional facilities would include four meter stations, valve sites and modifications to the piping configuration at the existing Ekwan meter station in Alberta. Some temporary infrastructure would be required for construction. In addition, electrical facilities would be needed for pipeline operations. The Project would require the crossing of several named and unnamed watercourses and drainages. Pending regulatory approval, construction is scheduled to occur during the first quarter of 2011 with completion in the second quarter of 2012. Section 4.0 provides a detailed description of the work associated with the Project.

1.2 Rationale for the Project

The purpose of the Project is to transport natural gas in a buried pipeline from the Horn River Basin (HRB) area of northeastern BC to an interconnection point with the existing Alberta System. The Project would enable area producers to connect their gas reserves to the Alberta System and, thereby, access the NOVA Inventory Transfer market as well as markets elsewhere in Canada and in the United States. According to NGTL, the extension of the Alberta System to the HRB would also contribute to the overall economic development of the area. The new source

of natural gas supply from the HRB would contribute to the long-term utilization of the Alberta System.

1.3 Baseline Information and Sources

The analysis for this ESR is based on information from the following sources:

- Project Application including the Environmental and Socio-Economic Assessment (ESA);
- Supplementary filings to the Project Application;
- Responses to information requests;
- Submissions from the public and interested parties including letters of comment;
- Written argument submitted as part of the GH-2-2010 hearing process; and
- NGTL's application for approvals under the *Navigable Waters Protection Act*

Filed information pertaining to the Project Application can be found within "Regulatory Documents" on the NEB's website (www.neb-one.gc.ca). For more details on how to obtain documents, please contact the Secretary of the NEB at the address specified in Section 10.0 of this report.

2.0 ENVIRONMENTAL ASSESSMENT (EA) PROCESS

2.1 Government Participation in the EA Coordination Process

On 20 May 2009, the NEB issued a Federal Coordination Notification (FCN) letter pursuant to section 5 of the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (Federal Coordination Regulations) to identify the potential involvement of federal departments in the EA process. The responses are summarized in Table 1.

Table 1: Federal Government Involvement in the CEA Act Process

Responsible Authorities (RAs)	Regulatory Trigger(s)
NEB Transport Canada (TC)	NEB Act section 52 *Navigable Waters Protection Act* section 5 NEB Act subsection 108(4)
Federal Authorities (FAs) in Possession of Specialist or Expert Information or Knowledge	
Environment Canada (EC) Fisheries and Oceans Canada (DFO) Health Canada Natural Resources Canada	

The FCN letter was also sent to the BC Environmental Assessment Office (EAO). BC EAO did not express interest in monitoring or participating in the EA process for the Project.

2.2 Opportunities for Public Input into the EA

On 26 April 2010, the NEB released Hearing Order GH-2-2010 describing the process and requirements of the public hearing for the Project. The NEB process allowed for a number of opportunities for the public (including government authorities and Aboriginal groups) to participate and provide input into the EA by providing comments on the Scope of the Environmental Assessment (Scope of EA or Scope) and List of Issues. Parties had the option of filing a letter of comment, presenting an oral statement or participating as an Intervenor. The Government Participant option was also provided to government authorities to allow them to participate without becoming Intervenors.

2.2.1 Submissions to the Board

Throughout the course of the EA process, the Board received several submissions pertaining to Project-related EA matters. Section 6.0 describes the issues raised in submissions to the Board.

2.2.2 Draft Scope of EA

The Draft Scope of the EA (Draft Scope) was posted on the Canadian Environmental Assessment Registry on 29 April 2010. The Draft Scope was attached to the GH-2-2010 Hearing Order as Appendix V and parties were encouraged to provide their suggested amendments or additions by 28 May 2010. With these actions, the NEB again solicited comments from RAs, FAs, provincial authorities and the public on the Draft Scope for the Project. In a letter dated 19 May 2010, TC indicated that it concurred with the Draft Scope. No other comments were received regarding the Draft Scope.

2.2.3 NEB Hearing

As described in Hearing Order GH-2-2010, the NEB had indicated that it would convene an oral public hearing for the Project. On 13 October 2010, the NEB revised the hearing process based on comments from Intervenors indicating that oral cross-examination of NGTL was not necessary. As a result, the GH-2-2010 proceeding was conducted by means of a written hearing process. The Board issued a revised schedule for the written process on 13 October 2010.

2.2.4 Draft Environmental Assessment Report

On 9 December 2010, the NEB sent a letter to interested parties inviting comments on the Draft ESR. Further, a notice for public comment on the Draft ESR was posted on the Canadian Environmental Assessment Registry. Appendix 2 of this ESR provides a summary of the key comments, some of which resulted in wording changes to the ESR. Explanations have been included for those comments that did not result in changes to the ESR.

3.0 SCOPE OF THE EA

The Scope of the EA is composed of three parts:

1. Scope of the Project;
2. Factors to be Considered; and
3. Scope of the Factors to be Considered.

The Scope, as determined by the RAs in consultation with the FAs and the public, is included in Appendix 1 of this ESR and provides detailed information on these three parts. Section 4.0 of this ESR expands upon the "Scope of the Project".

4.0 DESCRIPTION OF THE PROJECT

Table 2 provides information for each phase of the Project: construction, operations and abandonment.

Table 2: Details of the Project

Physical Work and/or Activity
Construction Phase – Timeframe: Proposed start in first quarter 2011, pending regulatory approval and completed by second quarter of 2012
▪ Construction and operation of approximately 72 km of new 914 mm (NPS 36) OD sweet natural gas pipeline from the proposed Cabin meter station to the proposed Sierra meter station on the existing Ekwan Pipeline in BC. ▪ Construction and operation of approximately 2.2 km of 610 mm (NPS 24) OD sweet natural gas pipeline, extending northeast from a point on the Cabin Section to the proposed Komie East meter station. ▪ The RoW would be approximately 32 metres (m) wide, consisting of 18 m of permanent RoW with 14 m of temporary workspace. An exception would occur when paralleling the east side of an existing disposition, where there would be a 26 m wide permanent RoW with an additional 6 m wide temporary workspace. ▪ Construction of watercourse crossings including Lichen Creek, Moss Creek and the Sahtaneh River. ▪ Additional temporary workspace would be required on a site-specific basis at roads, pipeline and watercourse crossings, and at other locations to accommodate pipeline construction activities. These include the following: temporary construction workspace, log deck and material storage, temporary construction camp, temporary access roads, equipment and fuel storage sites (marshalling yards), pipe stockpile sites, and construction office sites.
▪ Temporary aboveground hydrostatic test water supply pipeline from the Komie East meter station to Cabin Lake (test water source). The pipe size would range from 219.1 mm OD (NPS 8) to 323.9 mm OD (NPS 12). ▪ Four proposed meter stations: Cabin meter station at the north endpoint at c-74-J/94-P-4, Sierra meter station at the south endpoint at b-25-k/94-I-11, Komie East meter station at d-48-I/94-P-4 and Little Hay Creek meter station at c-66-H/94-I-9. The meter stations include the following: custody transfer metering, communication and control systems, and associated piping and valves. ▪ Modification to the piping configuration at the existing Ekwan meter station at 10-15-111-12 W6M to accommodate the gas volumes transported on the new pipeline. ▪ Other facilities including: pipeline valves, valves and blind flanges to accommodate the potential installation of launcher and receiver facilities for in-line inspection, cathodic protection system, associated miscellaneous works such as pipeline warning signs and aerial markers, and temporary infrastructure such as construction access roads, stockpile sites, pipe storage sites, contractor yards and construction camps.
Operation Phase – Timeframe: Service life of the Project (30 + years)
▪ Operational maintenance of the pipeline. ▪ Equipment and vehicle operation. ▪ Vegetation control for non-native and noxious weed species along the pipeline RoW and areas within the valve sites and meter stations. ▪ Regular aerial and/or ground-based patrols would be conducted to visually inspect the RoW for environmental and integrity issues. ▪ In-service inspections and cathodic protection monitoring would be conducted to prevent or minimize

Physical Work and/or Activity
external corrosion of the pipeline. ▪ Maintenance digs would be conducted in the event that an actual or suspected pipeline integrity problem is identified, and subsequent reseeding and reclamation would be undertaken. ▪ Computer based supervisory control and data acquisition system would be used to monitor and control pipeline operations from the TransCanada Operations Control Centre located in Calgary, Alberta.
Abandonment Phase – Timeframe: At the end of the service life of the Project
▪ Pursuant to paragraph 74(1)(d) of the NEB Act, an application would be required to abandon the facility, at which time the environmental effects would be assessed by the NEB under both the NEB Act and the CEA Act. TC as the other RA would also assess the environmental effects of an abandonment application.

5.0 DESCRIPTION OF THE ENVIRONMENT

This section describes the environment and socio-economic setting of the proposed Project. Known reference points along the route are commonly referred to as kilometre posts (KP). KP 0 is located at the proposed Cabin meter station in c-74-J/94-P-4 in BC. KP 72 is located at the proposed Sierra meter station in b-25-K/94-I-11 in BC.

NGTL used the following spatial boundaries to determine and assess each environmental and social component discussed in its ESA:

- The Footprint Study Area (Footprint) is made up of the area directly disturbed by the Project construction and clean-up activities, including associated physical works and activities (e.g., permanent RoW, construction campsite, temporary workspace for construction, block valve site and meter station sites).

- The Local Study Area (LSA) varies with the element being considered. The LSA is based on the zone of influence within which plants, animals and humans are most likely to be affected by Project construction and operation. The LSA for the proposed pipeline route (Project LSA) is defined as a 2-km wide band centred on the Cabin Section pipeline, Komie East Extension pipeline, meter stations and the construction campsite.

- The Regional Study Area (RSA) is an area which extends beyond the LSA boundary. The Project RSA includes the Cabin Section pipeline, Komie East Extension pipeline, temporary aboveground hydrostatic test water supply line, construction campsite, and the Cabin, Komie East and Sierra meter stations. The Little Hay Creek and Ekwan meter stations are not included in the Project RSA.

- For social elements (e.g., social and cultural well-being), local effects are related to specific communities considered in the socio-economic assessment.

Terrain and Soils

- The Project, excluding the Ekwan meter station, is situated within the Fort Nelson Lowland Subregion of the Great Plains Physiographic Region of BC. The proposed

pipeline route traverses lands which are generally flat to gently undulating terrain interrupted by incised valleys associated with watercourse crossings.

- The Ekwan meter station is located within the Northern Alberta Lowlands Physiographic Region of the Interior Plains Division of Alberta. Terrain in this region is characterized by level topography. The region is underlain by organic deposits, bog peat, fen peat, till blanket, glaciolacustrine deposits, and morainal deposits.

- The dominant soils along the proposed pipeline route are poorly-drained Organic Cryosols and moderately well-drained Gray Luvisols. Soil textures are predominately decaying organic matter and fibric peat, developed on flat-lying or gently dipping sandstones and shales.

- The Project is located within an area of sporadic, discontinuous permafrost (10 to 50%). Results of the permafrost characterization work completed to date suggest that less than 10% of the pipeline route is likely underlain by discontinuous permafrost.

- The proposed pipeline route and associated permanent facilities do not traverse any contaminated sites listed on the 2009 Federal Contaminated Sites Inventory. There are also no areas of known soil contamination or contaminated sites listed by the BC Crown Land Restoration Branch of the BC Ministry of the Environment (MOE).

Land Use

- All lands along the proposed pipeline route are forested Crown land within the Northern Rockies Regional Municipality (NRRM). The pipeline route is located approximately 70 km east of Fort Nelson. With the exception of the Ekwan meter station, the Project lies within the Fort Nelson Land Resource Management Plan area and the Etsho Resource Management Zone. The Ekwan meter station is located in the Alberta Green Zone within the boundaries of the Mackenzie County Municipal Development Plan

- There are no agricultural lands within the Project Footprint, LSA or RSA. Oil and gas exploration and development activities are the predominant land use in the RSA and include seismic lines, pipelines, well sites, access roads and associated facilities such as gas processing plants.

Vegetation

- The proposed pipeline route traverses the Boreal White and Black Spruce Bio-geoclimatic Zone in the Fort Nelson Forest District. None of the potential rare plant species or rare ecological communities that may occur in the Project area have a designation by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or under the *Species at Risk Act* (SARA). No COSEWIC or SARA-listed species or species designated under the BC Identified Wildlife Program were observed during vegetation surveys.

- NGTL's surveys found eight rare plant species listed in the BC Conservation Data Centre. These included: bog adder's-mouth orchid (found in clearing adjacent to a bog);

European water-hemlock (found in poor fens); Iowa golden saxifrage, orange touch-me-not, purple-stemmed aster and western Jacob's-ladder (all found in riparian areas); as well as potential jack pine (found in mixedwood forest) and yellow collar moss (found in fen-bog transitional area).

- Forested swamps occur in transitional areas between uplands and wetlands and in non-classified drainages (NCDs) with stagnant surface water. Many of the rare plants observed along and in the vicinity of the proposed pipeline route were encountered in transitional swampy habitat, including Iowa golden-saxifrage, European water-hemlock, yellow collar moss and western Jacob's-ladder.

- No prohibited invasive species were observed along the proposed pipeline route during the rare plant surveys. Invasive species observed along the proposed RoW include one primary invasive species – scentless chamomile, and five secondary invasive species – curled dock, pineappleweed, annual hawk's-beard, smartweed and yarrow. Weedy species were observed primarily on the existing RoW adjacent to the proposed pipeline route.

Watercourses and Aquifers

- The Project lies within the Hay River and Fort Nelson River sub-basins in northeast BC and northwest Alberta, with watercourse crossings located in two BC watershed groups: the Sahtaneh River Watershed Group and the Kotcho Lake Watershed Group. Sixteen watercourses crossed by the proposed pipeline route are located in the Sahtaneh River Watershed Group (referred to by NGTL as 1-WC to 16-WC) and the remaining four watercourses are located in the Kotcho Lake Watershed Group (17-WC to 20-WC).

- Within the Kotcho Lake Watershed Group, the proposed route crosses Metlahdoa Creek and several of its tributaries. Within the Sahtaneh River Watershed Group, the proposed route crosses Lichen, Moss and Courvoisier creeks, the Sahtaneh River and several unnamed tributaries to these watercourses. The proposed route does not traverse any Community Watersheds recognized by the BC government.

Fish and Fish Habitat

- Aquatic surveys were conducted at 19 watercourse crossing sites along the proposed Cabin Section route during the spring/summer 2009. No watercourses were identified along the Komie East Extension.

- Ten watercourses crossed by the proposed Project are fish-bearing including: Courvoisier Creek (3-WC), two unnamed tributaries to Courvoisier Creek (6-WC and 8-WC), the Sahtaneh River (15-WC), two unnamed tributaries to the Sahtaneh River (10-WC and 11-WC), Lichen Creek (16-WC), Moss Creek (13-WC), and two unnamed tributaries to Moss Creek (12-WC and 14-WC). The width of these watercourses ranges from 1.5 m to 20 m. During the aquatic surveys conducted in May 2010, an additional watercourse crossing was identified, the unnamed tributary to Metlahdoa Creek (20-WC).

- There are five species of sportfish and nine species of non-sportfish that may occur in the Sahtaneh River and Kotcho Lake Watershed groups crossed by the proposed pipeline route. Fish species captured in aquatic surveys included longnose sucker, brook stickleback, finescale dace, northern redbelly dace, white sucker and trout-perch. Inconnu, which may be found in the Sahtaneh River, is provincially Blue-listed in BC. There are no fish species listed federally under the SARA or by the COSEWIC.

Wetlands

- Eight wetland classifications were identified along the proposed route: treed bog, treed fen, shrubby fen, graminoid fen, treed swamp, shrubby swamp, peat-accumulating marsh, and shallow open water.

- The Cabin Section would traverse 54 wetlands for a combined distance of approximately 33.43 km, comprising approximately 46% of the route. The Komie East Extension would traverse one wetland for a total distance of 350 m, comprising approximately 16% of the extension route.

- Forty-one of the wetlands that would be traversed by the pipelines are classified as peatlands (i.e., muskeg consisting of bog or fen). The Project crosses four marshes with peat-accumulating organic materials overlying mineral substrates and six swamps with mineral substrates.

- There are no wetlands listed on the Ramsar List of Wetlands of International Importance along the pipeline route. Further, the proposed Project would not encounter any Important Bird Areas, Migratory Bird Sanctuaries or Ducks Unlimited projects associated with wetlands.

Wildlife and Wildlife Habitat

- There are two wildlife species of concern listed by COSEWIC with potential habitat within the Project Footprint: grizzly bear and wolverine (both listed as being of Special Concern). Ducks Unlimited and Canadian Wildlife Service reported one trumpeter swan (Blue-listed in BC) breeding lake approximately 752 m south of the proposed Sierra meter station.

- Moose and their sign (e.g., tracks, scat, browsing activity) were observed frequently along the surveyed segments of the pipeline routes and access roads, particularly within upland deciduous and mixedwood forests and in areas containing willow. No mineral licks were observed on or near the proposed pipeline route, access roads associated with the Project, and temporary aboveground water supply pipeline route.

- Black bear were the most frequently observed large carnivore, followed by grey wolf, coyote and lynx. There were no obvious active or recently used dens observed during the wildlife surveys. Beaver activity has had a considerable influence on riparian and wetland habitats in the Project LSA, and has created numerous small ponds and wetlands, as well

as larger wetland complexes and mudflats. Two locations with recent beaver activity near KP 26.8 and KP 59.6 were identified in wildlife surveys.

- There were 61 bird species observed during the wildlife surveys. One species is provincially Red-listed (Cape May warbler) and four are Blue-listed in BC (broad-winged hawk, LeConte's sparrow, barn swallow and surf scoter). No obvious stick nests or nests of any Red or Blue-listed bird species, or any other bird species with special conservation status, were observed in the wildlife surveys. The highest diversity of birds recorded during the surveys was reported at the marsh along Lichen Creek (near KP 50.3).

- There is suitable breeding habitat for wood frogs and boreal chorus frogs (e.g., wetlands, beaver complexes, watercourses without fish) within the Project LSA. The wildlife surveys confirmed the presence of two amphibian breeding ponds located within an existing borrow pit east of KP 10.5. The pipeline was aligned to the west of the borrow pit to avoid impacts to the amphibian breeding ponds.

- The Project area lies in the Boreal Taiga Plains Bird Conservation Region. The proposed pipeline route would not traverse any National Wildlife Areas, Important Bird Areas or World Biosphere Reserves.

Wildlife Species at Risk (listed on Schedule 1 of the SARA)

- There are four species listed as Threatened on Schedule 1 of the SARA whose habitats occur in the Project area. These species include: boreal woodland caribou (caribou), olive-sided flycatcher, Canada warbler and common nighthawk. Also, the rusty blackbird is listed as a species of Special Concern on Schedule 1 of the SARA, and its habitat occurs in the Project area.

- The proposed pipeline route would traverse the Snake-Sahtaneh boreal woodland caribou range (Snake-Sahtaneh range) for approximately 59 km from KP 0 to KP 59 and the West Kotcho Core caribou zone (West Kotcho Core) for approximately 8 km from KP 15.6 to KP 15.8 and KP 20.5 to KP 28.3. Two proposed meter stations (Cabin and Komie East) are located within the Snake-Sahtaneh caribou range.

- The proposed Project would traverse two Ungulate Winter Ranges (UWRs) and one Wildlife Habitat Area (WHA) designated by the province of BC for boreal woodland caribou. The development of best management practices for these areas is yet to commence.

Air Quality and Greenhouse Gas Emissions

- The construction and operation of the Project would result in criteria air contaminants (CACs) and greenhouse gas (GHG) emissions. The largest contributing source of GHG emissions during construction and operations would be from burning of land-clearing debris.

Acoustic Environment

- Ambient noise in the Project area is primarily caused by local and industrial vehicle traffic and industrial maintenance activities.

Human Occupancy and Resource Use

- The Project, with the exception of the Ekwan meter station, traverses provincial Crown land in BC. The Ekwan meter station is located on provincial Crown Land in the Green Zone of Alberta.

- The proposed pipeline route is located approximately 70 km east of Fort Nelson, BC. The Project is located in the NRRM, which includes the town of Fort Nelson.

- The predominant economic activity in the Project RSA, Little Hay Creek LSA and Ekwan LSA is oil and gas development, although forestry was an important activity in the recent past. There are no outfitting or formal recreation opportunities in the Project RSA, Little Hay Creek LSA and Ekwan LSA. There are trap lines, cabins, resident hunting, as well as hunting, fishing, trapping and gathering by Aboriginal people in the LSA.

- In 2008, the two major lumber mills in the Fort Nelson area closed down. Trans North Timber of Fort Nelson currently operates in the area but there is a limited local market for logs. The Fort Nelson Forestry Roundtable Committee (a committee of the NRRM) is currently discussing how the oil and gas industry could dispose of merchantable timber in the absence of large local mills.

- Three watercourses in the Project area have been deemed navigable by TC: Lichen Creek, Moss Creek and the Sahtaneh River.

- The lands traversed by the proposed Project do not encounter any rural or urban residential areas, Indian Reserves or Aboriginal communities, agricultural or recreational lands, lands under Parks Canada's jurisdiction, conservation and commercial areas, water reserves and licenses or water intakes, or land and water-based transportation infrastructure.

Traditional Land and Resource Use

- Traditional Land Use (TLU) studies were undertaken for all Crown lands crossed by the proposed route.

- The proposed Project route is located entirely within Treaty 8 and traverses traditional territories claimed by the Fort Nelson First Nation (FNFN), the Prophet River First Nation (PRFN), and the Dene Tha' First Nation (DTFN).

- The FNFN, PRFN and the DTFN participated in the development of TLU studies to evaluate the potential effects of the Project on traditional Aboriginal activities. Both the FNFN and the DTFN elected to complete separate TLU studies for the Project, while

PRFN worked with NGTL and its consultants. Aboriginal representatives from the three communities also participated in wildlife, aquatic, wetland and vegetation surveys and the Archaeological Impact Assessment (AIA) for the Project. NGTL included the traditional ecological knowledge collected during these surveys in its ESA. As well, the Aboriginal communities also played an active role in the collection of information in support of the socio-economic assessment.

Heritage Resources

- An AIA was conducted along the proposed pipeline route. A supplemental AIA was undertaken to address segments where minor pipeline route refinements have been made as well as areas required for extra workspace and temporary access roads associated with the Project.

- One previously recorded site and one previously unrecorded site were identified within the RoW as well as one previously recorded site within 100 m of the Project Footprint (although it was determined that this site did not extend into the Project Footprint). Given the small and sparse nature of the artifacts recovered in the sites within the RoW and the absence of culturally diagnostic artifacts, tools or features, the sites were deemed to have relatively low interpretive potential.

6.0 COMMENTS FROM THE PUBLIC

This section describes the issues raised during the process outlined in Section 2.0 of the ESR.

6.1 Project-Related Issues Raised through Consultation Conducted by NGTL

6.1.1 Comments from Aboriginal Groups

NGTL undertook engagement and consultation activities with seven Aboriginal groups identified as being potentially affected by the Project. No Aboriginal groups registered as Intervenors for the NEB hearing process and while one registration for an oral statement was received from the East Prairie Métis Settlement, it was subsequently withdrawn. No other letters of comment from Aboriginal groups were received.

Three Aboriginal groups expressed an interest in participating in the TLU studies for the Project: the FNFN, the DTFN, and the PRFN. The FNFN and DTFN completed their own respective TLU studies, while the PRFN worked directly with NGTL and its consultants. The findings of each study were compiled into a comprehensive TLU study report. The TLU studies consisted of community interviews, helicopter fly-overs and ground-truthing of potential TLU sites, discussion of potential effects and development of mitigation measures.

According to NGTL, two TLU sites were found within the PRFN traditional territory but outside of the RSA for the Project. The FNFN TLU study identified a number of cabins adjacent to the Project Footprint. No habitation sites, hunting and fishing areas, trapping areas, gathering areas or plant harvesting sites were identified as requiring site-specific mitigation by the FNFN. The DTFN TLU study identified a medicinal plant gathering site in the Metlahdoa Creek area and fishing sites at Courvoisier Creek and the Sahtaneh River. No habitation sites, hunting and

fishing areas, trapping areas, gathering areas or plant harvesting sites were identified as requiring site-specific mitigation by the DTFN. NGTL was not made aware of any site-specific concerns for which there is no mitigation proposed.

Aboriginal groups raised several issues with NGTL with respect to the Project including: watercourse crossings, water withdrawals from Cabin Lake, effects on caribou and caribou habitat, and potential impacts to cultural sites.

The FNFN and DTFN identified that the Sahtaneh River and Courvoisier Creek are fishing waterways and requested that NGTL use horizontal directional drilling (HDD) at the crossings. NGTL met with both Aboriginal groups to explain that, owing to HDD logistics and the watercourse characteristics, HDD would not be feasible. NGTL committed to include Aboriginal community members in monitoring select watercourse crossings during construction and work with the Aboriginal groups to develop and implement a watercourse crossing monitoring program.

The DTFN expressed concern to NGTL regarding the use of water from Cabin Lake and the associated overland water supply pipeline for hydrostatic testing of the pipeline portion of the Project. DTFN supported NGTL's initial application as part of the Horn River Project for alternative integrity verification (AIV) which, if approved, would not have required water withdrawals from Cabin Lake. However, NGTL subsequently withdrew its application for AIV. NGTL has committed to having DTFN participate during the collection of the additional sampling and to sharing field notes from the sampling program with DTFN. NGTL's project specific monitoring plan would address aspects of pipeline construction and hydrostatic testing of the pipeline portion of the Project, as well as Aboriginal group representation and the scope of the involvement of Aboriginal groups.

The West Moberly First Nation (WMFN) and DTFN questioned NGTL on the potential effect that the Project may have on caribou and caribou habitat. Members of the WMFN and DTFN expressed concerns regarding decreased caribou population and habitat fragmentation in the region. As noted in Section 8.1, NGTL identified the need to re-route a portion of the Cabin Section to minimize the length of pipeline traversing the West Kotcho Core. Further mitigation measures with respect to caribou are discussed in Section 8.3.2.6.

DTFN also had concerns about the potential impacts of the Project on sites of cultural significance, such as burial sites. NGTL committed to implementing its Heritage Resources Discovery Contingency Plan in the event of the discovery of historical sites during construction. This includes suspending construction activities in the vicinity of any historical resources discovered during construction and notification of BC Natural resource Operations.

6.2 Project-Related Issues Raised in Comments Received by the NEB

Several Project-related issues were brought to the Board's attention through letters of comment. Table 3 lists the issues raised by members of the public and government authorities. To view the submitted documents, please refer to the NEB website (https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=601085&objAction=browse&sort=-name). If computer access

is not available, you may obtain copies through the Secretary of the Board via the contact information in Section 10.0.

Table 3: Submissions to the NEB

Name	Topic(s) of Comments	Date of Submission	Exhibit Number / Filing ID
Transport Canada	▪ Current use of Courvoisier Creek ▪ Location of the temporary overland water supply pipeline with respect to West Kotcho Core ▪ Hydrostatic testing ▪ Potential environmental impacts associated with the overland water pipeline and water withdrawals from Cabin Lake	23 June 2010	D-01-3 (A1T3X7)
Environment Canada	▪ Migratory birds ▪ Species at Risk ▪ Wetland ecosystems ▪ Cumulative effects ▪ Hydrostatic testing	4 July 2010	E-04 (A1T8Y0)
Eh-Cho-Dene Enterprises	▪ Aboriginal business and employment opportunities ▪ RoW and construction camp clearing in winter 2010/11	4 August 2010	E-03 (A1T9E2)
Fort Nelson Forestry Roundtable Committee, a committee of the NRRM	▪ Local economic opportunities; loss of salvageable timber ▪ RoW and construction camp clearing in winter 2010/11	4 August 2010	E-02 (A1T9D8)

Letters of Comment were received from the Fort Nelson Forestry Roundtable Committee and Eh-Cho-Dene Enterprises. Both groups expressed support for having local community members participate in the Section 58 Activities starting in the winter of 2010/2011. The letters also stated that commencing the Section 58 Activities in the winter of 2010/2011 would lead to greater local social and economic benefits from the Project. The Board has considered these comments in Recommendations C and D in Section 8.6. Issues raised by TC and EC are addressed within Section 8.3, 8.4 and 8.6 of this report.

6.3 Comments Received by the NEB on the Draft EA Report

Following the release of the Draft ESR, a number of comments were received from TC, EC and NGTL. To view the submitted comments, please refer to the NEB website (www.neb-one.gc.ca) at https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=601085&objAction=browse&sort=-name&redirect=3. Appendix 2 provides a summary of comments received on the Draft ESR.

7.0 NEB'S ENVIRONMENTAL ASSESSMENT METHODOLOGY

In assessing the environmental effects of the proposed Project, the NEB used an issue-based approach. In its analysis within Section 8.2, the NEB identified interactions expected to occur between the proposed Project activities and the surrounding environmental elements. Also included were the consideration of potential accidents and malfunctions that may occur due to the Project and any change to the Project that may be caused by the environment. If there were no expected element/Project interactions then no further examination was deemed necessary. Similarly, no further examination was deemed necessary for interactions that would result in positive or neutral potential effects. In circumstances where the potential effect was unknown, it was categorized as a potential adverse environmental effect. Section 8.3.1 provides an analysis for all potential adverse environmental effects that are resolved through the use of standard design or mitigation measures. In Section 8.3.2, the NEB has identified certain potential adverse environmental effects for detailed analysis based on public concern, the use of non-standard design or mitigation measures, or the relative importance of the elements in question in the context of this application. Table 4 specifies the definitions for criteria used in evaluating significance.

Table 4: Significance Criteria Definitions

Criteria	Rating	Definition
All criteria	Uncertain	When no other criteria rating descriptor is applicable due to either lack of information or inability to predict
Frequency	Single	One time event within any phase of the Project lifecycle
	Multiple	Multiple occurrences during any phase of the Project lifecycle
	Continuous	Continuous through any phase of the Project lifecycle
Duration	Short-term	Adverse environmental effect duration is in the order of months and/or limited to the proposed construction
	Medium-term	Adverse environmental effect duration is in the order of a few years
	Long-term	Adverse environmental effect would remain evident throughout the planned operation of the pipeline or beyond the lifecycle of the Project
Reversibility	Reversible	Adverse environmental effect expected to return to baseline conditions within the life of the Project
	Possible	Adverse environmental effect may or may not return to baseline conditions within the life of the Project
	Irreversible	Adverse environmental effect would be permanent, or reversible beyond the lifecycle of the Project
Geographic Extent	Project Footprint	Area directly disturbed by Project construction and clean-up activities, including associated physical works and activities (e.g., permanent RoW, construction campsite, temporary workspace for construction, block valve site and meter station sites)
	Local	A 2-km wide band centred on the proposed pipeline route and additional facilities. For social elements (e.g., social and cultural well-being), local effects are related to specific communities considered in the socio-economic assessment

	Regional	Area extending beyond the LSA boundary. This area was based on elements deemed most relevant to the assessment of the Project and included boundaries for caribou core habitat and natural drainage features
Magnitude	Low	Adverse environmental effect would have a negligible influence on physical (e.g. soils and terrain), biophysical (e.g. vegetation, wildlife, fisheries, air quality), or social elements (e.g. human health, traditional land use, heritage resources, ambient noise levels). The effect would impact the quality of life for some, but individuals commonly adapt or become habituated, and the effect is widely accepted by society
	Moderate	Adverse environmental effect would have a local influence on physical, biophysical, or social elements. Effect would impact quality of life but the effect is normally accepted by society
	High	Adverse environmental effect would have a regional influence on physical, biophysical, or social elements. Effect would impact quality of life, result in lasting stress and is generally not accepted by society except under extenuating circumstance
Evaluation of Significance	Likely to be significant	Effects that are continuous, irreversible, long term duration, regional extent and of high magnitude
	Not likely to be significant	Any adverse effect that does not meet the above criteria for "Significant"

Section 8.4 addresses cumulative effects, Section 8.5 addresses follow-up programs and Section 8.6 lists recommendations for any subsequent regulatory approval of the Project.

8.0 ENVIRONMENTAL EFFECTS ANALYSIS

8.1 Routing of the Pipeline and Meter Site Selection

NGTL developed Project-specific routing and criteria for evaluation of a number of alternative routes for the proposed Project. The Project was routed to avoid environmentally sensitive areas, paralleling existing RoW and disturbed lands where practical. NGTL identified and evaluated five potential route options (Options A to E) based on fixed end locations of the pipeline and other considerations including existing linear infrastructure, watercourse crossings and length traversing environmentally sensitive areas such as protected, endangered or sensitive vegetation and wildlife habitat.

The Option B Komie Road Route was preferred to other route options since it would minimize disturbance through the West Kotcho Core, encounter less muskeg and discontinuous permafrost and have fewer watercourse and road crossings. Within the West Kotcho Core, the preferred route would parallel the existing Komie Road and other linear disturbances for approximately 5.6 km. NGTL also selected Option B based on recommendations provided by the BC MOE and the FNFN.

Meter station locations were selected following consultation with producers about their tie-in needs and by applying Project-specific siting criteria including: tie-in locations, terrain, land use, potential environmental effects, RoW corridors, crossings, historical resources and road access.

8.2 Project - Environment Interactions

Table 5 provides a description of the potential adverse environmental effects of the Project.

Table 5: Project-Environment Interactions

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation to be Implemented
Bio-Physical	Physical Environment – Terrain Stability	▪ Clearing, grading, excavation and backfilling along RoW	▪ Terrain stability	Yes (Y)
			▪ Alterations to local topography	Y
	Physical Environment – Permafrost	▪ Clearing, grading, excavation and backfilling along RoW	▪ Degradation of discontinuous permafrost	Y
	Soil and Soil Productivity	▪ Clearing, grading, excavation and backfilling along RoW ▪ Use of construction equipment and vehicles ▪ Encountering and disturbance of previous site contamination	▪ Topsoil loss, compaction or rutting	Y
			▪ Topsoil loss from surface water erosion or wind erosion	Y
			▪ Topsoil loss through trench instability	Y
			▪ Loss of soil productivity through potential soil contamination	Y Refer to s. 8.3.2.1
	Vegetation	▪ Clearing, grading, excavation and backfilling along RoW ▪ Use of construction equipment and vehicles ▪ Vegetation maintenance along RoW during operation	▪ Loss and/or alteration of native vegetation, rare ecological communities and rare plants	Y Refer to s. 8.3.2.2
			▪ Alteration of vegetation important to wildlife	Y Refer to s. 8.3.2.6
			▪ Non-native or invasive weed introduction and spreading	Y
			▪ Loss of salvageable timber	Y
			▪ Loss and/or alteration of riparian habitat	Y Refer to s. 8.3.2.2
	Water Quality and Quantity	▪ Clearing, grading, excavation and backfilling along RoW ▪ Use of construction equipment and vehicles during construction and operation ▪ Hydrostatic test water withdrawal and discharge from/to nearby sources	▪ Alteration of natural drainage patterns	Y
			▪ Disruption of subsurface hydrologic flow and reduction of ground water quality and quantity	Y Refer to s. 8.3.1
			▪ Introduction of sediments to surface water	Y
			▪ Introduction of contaminants including any other deleterious substances	Y

Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation to be Implemented
Fish and Fish Habitat	▪ Clearing, grading, excavation and backfilling along RoW ▪ Use of construction equipment and vehicles during construction and operation ▪ Hydrostatic test water withdrawal and discharge	▪ Fish mortality (direct or indirect)	Y Refer to s. 8.3.2.3
		▪ Loss and/or alteration of instream habitat	Y
		▪ Increased suspended sediment concentrations in the water column	Y
		▪ Increased access to fish and fish habitat	Y
		▪ Blockage of fish movements	Y
		▪ Contamination from spills	Y
		▪ Harmful alteration, disruption or destruction (HADD) of fish habitat from the pipeline installation and access	Y Refer to s. 8.3.2.3
Wetlands	▪ Clearing, grading, excavation and backfilling along RoW within proximity of wetlands ▪ Use of construction equipment and vehicles during construction and operation	▪ Loss and/or alteration of wetlands (hydrologic and water quality functions)	Y Refer to s. 8.3.2.4
		▪ Contamination from spills	Y
Wildlife and Wildlife Habitat	▪ Project RoW traverses through potential habitat of grizzly bear and wolverine ▪ Clearing, grading, excavation and backfilling along RoW ▪ Increased noise levels from construction and operation activities along RoW ▪ Use of equipment and vehicles during construction and operation ▪ Increased vehicular traffic to Project area ▪ Worker interaction with wildlife ▪ Waste generated by construction activity ▪ Long term operational control and management of vegetation along RoW	▪ Loss and/or alteration of habitat	Y Refer to s. 8.3.2.5
		▪ Barriers to wildlife movement	Y Refer to s. 8.3.2.5
		▪ Changes to habitat connectivity	Y
		▪ Disturbance to migratory bird nests and nestlings	Y Refer to s. 8.3.2.5
		▪ Sensory disturbance to wildlife	Y
		▪ Human/wildlife conflicts and wildlife mortality	Y
Species at Risk pursuant to Schedule 1 of the SARA	▪ Project RoW traverses the Snake-Sahtaneh woodland boreal caribou range and West Kotcho Core ▪ Project RoW traverses through potential habitat of rusty blackbird, olive-sided	▪ Mortality, stress, reduced reproductive success with concomitant population declines	Y
		▪ Loss and/or alteration of boreal woodland caribou habitat	Y Refer to s. 8.3.2.6

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation to be Implemented
		flycatcher, Canada warbler, and common nighthawk ▪ Construction activities associated with clearing, grading, excavation and backfilling along RoW ▪ Use of construction equipment and vehicles ▪ Long term operational control and management of vegetation along RoW	▪ Change to boreal woodland caribou habitat connectivity	Y Refer to s. 8.3.2.6
			▪ Loss and/or alteration of rusty blackbird olive-sided flycatcher, Canada warbler and common nighthawk habitat	Y Refer to s. 8.3.2.5
	Air Quality	▪ Air emissions, including CACs and GHGs from equipment and vehicles during construction ▪ Burning of land-clearing debris during construction ▪ Operational CACs, GHGs and fugitive emissions	▪ Reduction in air quality during construction	Y
			▪ Increase in dust and smoke during construction, temporarily reducing air quality	Y
			▪ Increase in CAC concentrations in the ambient air	Y Refer to s. 8.3.2.7
			▪ Increase in GHG and fugitive emissions during operation	Y Refer to s. 8.3.2.7
Socio-Economic	Human Occupancy/ Resource Use	▪ Increase in vehicular traffic ▪ Transport of workforce and materials to the Project site ▪ Site preparation (clearing, grading, excavation and backfilling activities along RoW) ▪ Navigation impacts on waterways from the construction, operation and decommissioning of pipeline crossings and use of water for hydrostatic testing	▪ Disruption of hunting, trapping and fishing activities ▪ Loss of forestry land base and forestry resources ▪ Alteration of viewscape as a result of widening existing pipeline corridor ▪ Interference to navigation and impact on navigation safety	Y
	Heritage Resources	▪ Clearing and construction activities	▪ Previously unidentified buried heritage resources disturbed during the AIA ▪ Previously unidentified buried heritage resources may be disturbed during construction	Y
	Traditional Aboriginal Land and Resource Use	▪ Construction on forested Crown land ▪ Removal of native vegetation ▪ Construction of watercourse crossings	▪ Loss or alteration of site-specific traditional land use ▪ Loss or disruption of subsistence hunting and trapping ▪ Impact on navigation of waterways and water quality and quantity	Y

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation to be Implemented
	Socio and Cultural Well-being	• Use of local water sources	• Change in feeling of well being due to use and disposal of local water sources	Y
	Human Health/ Aesthetics	• Noise and air emissions during construction • Use of construction vehicles and equipment • Pipeline maintenance activities	• Disruption of normal, daily living activities of some land users • Potential affect on the health of land users in event of an accident or malfunction	Y
	Infrastructure and Services	• Increase in vehicular traffic • Increase in workforce and transient workers • Use of construction vehicles and equipment • Site preparation (clearing, grading, excavation and backfilling activities along RoW)	• Increased traffic on highways and local roads used to access the RoW during construction • Temporary increase in waste flow to regional landfill sites during construction • Change in capacity of existing emergency services during construction and operation of pipeline	Y

Other	Accidents/ Malfunctions	• Spill or leak from damage and rupture to the facilities or equipment during construction and operation
		• Pipeline rupture
		• Fire
		• Failure of watercourse crossing methods
		• Transportation accidents
		• Third party line break
			• Disruption of pipeline construction and operation activities
			• Contamination or alteration of:
			  ▪ Soil productivity
			  ▪ Surface or groundwater quality
			  ▪ Fish and fish habitat
			  ▪ Wetland function
			  ▪ Plants and ecological communities
			  ▪ Wildlife and wildlife habitat
			  ▪ Human health
				Y

	Effects of the Environment on the Project	• Flooding • Erosion • Forest fires • Climate change	• Loss of depth of cover over the pipeline	Y
			• Disruption of construction activities	Y
			• Effects on scheduling or maintenance activities	Y
			• Damage to pipeline facilities and local infrastructure (i.e. roads, electrical transmission lines)	Y

8.3 Potential Adverse Environmental Effects

To address potential adverse environmental effects, NGTL has proposed several mitigation strategies:

- avoidance through route and site selection;
- schedule activities to avoid sensitive periods;
- develop detailed, practical and effective mitigation and contingency measures to address site-specific and general issues;
- inspection during construction to ensure that planned mitigation is implemented and effective; and
- conduct maintenance and operation of the Project according to NGTL's existing pipeline integrity, public safety, and environmental protection programs and procedures.

These measures have provided the Board with a sufficient basis to assess the potential adverse environmental effects associated with the Project and meet the objective of mitigating these effects.

8.3.1 Analysis of Potential Adverse Environmental Effects to be Mitigated through Standard Measures

The NEB is of the view that, based on the nature of this Project, the potential adverse environmental effects identified in Section 8.2 can be resolved through the use of standard design or routine mitigation measures as outlined in NGTL's application, related submissions, Environmental Protection Plan (EPP) and environmental alignment sheets for the Project. A standard mitigative measure is a specification or practice that has been developed by industry, or prescribed by a government authority, that has been previously employed successfully, and meets the expectations of the NEB.

The Board recommends NGTL file an updated EPP and maintain a commitments tracking table to ensure all mitigative measures proposed in the application and supplementary filings as well as commitments made during the proceedings are adhered to. See Recommendations A, B, C and E in Section 8.6 for more detail.

TC is of the view that if NGTL adheres to all conditions and mitigation measures attached to approvals, permits and authorizations for this Project, the potential adverse environmental effects of the Project are not likely to be significant. Any alternatives or alterations to crossing requirements specific in approvals, permits and authorizations must be reviewed and/or approved by the TC Navigable Waters Protection Program, prior to the commencement of crossing construction.

The NEB is of the view that, for this Project, if NGTL follows the above-mentioned standard design or mitigative measures, commitments made during the proceedings and adheres to the recommendations found in Section 8.6 of the ESR, the potential adverse environmental effects are not likely to be significant.

8.3.2 Detailed Analysis of Potential Adverse Environmental Effects

The following section provides a detailed analysis for each potential adverse environmental effect which is either of public concern, involves non-standard mitigation measures, monitoring programs or requires the implementation of an issue-specific recommendation.

The analysis provides a background to the issue, specific mitigation measures and monitoring programs, ratings for the criteria used in evaluating significance, and concludes with the views of the NEB along with any issue-specific recommendations.

For definitions of the criteria used for the evaluation of significance in the following tables, please refer to Table 4 in Section 7.0.

8.3.2.1 Soils

Issues	• Loss of soil productivity through potential soil contamination
Background	NGTL indicated that the proposed pipeline route and associated permanent facilities do not traverse any contaminated sites listed on the 2009 Federal Contaminated Sites Inventory. NGTL also notes that there are no areas of known soil contamination or contaminated sites listed by the BC Crown Land Restoration Branch along the pipeline route. The likelihood of contamination is considered to be higher along pipeline route segments on or adjacent to previously disturbed lands (e.g., existing pipelines, roads and seismic lines along the proposed route). NGTL also provided a copy of NGTL's Hazardous Waste Materials Management Manual, which provides a detailed description of procedures (including dealing with contaminated soils) to be carried out during construction and operation of the Project.
Mitigation Measures	NGTL has committed to updating the EPP for the Horn River Facilities to include a Contaminated Soils Management Plan.
Views of the NEB	Given NGTL's commitment to develop a contaminated soils management plan to be incorporated into the EPP, the Board is of the view the Project is not likely to cause adverse environmental effects associated with mobilization of existing soil contamination. The Board notes in NGTL's submission that the proposed facilities do not traverse any contaminated sites. However, the Board recommends that, in any approval that may be granted, NGTL be required to confirm that the EPP for the Horn River Facilities incorporates measures and remedial actions to be carried out in case soil contamination is discovered during construction (see Recommendation E(f) in Section 8.6).
Evaluation of Significance	Frequency: Single Duration: Short- to Medium term Reversibility: Reversible Geographical Extent: Project Footprint to Local Magnitude: Low Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.3.2.2 Vegetation

Issues	• Loss and/or alteration of native vegetation, rare ecological communities and rare plants • Non-native or invasive weed introduction and spreading • Loss and/or alteration of riparian habitat
Background	Native vegetation, rare ecological communities and rare plants may be adversely affected during construction, operation and maintenance activities of the proposed Project. Non-native and invasive weeds have the potential to become established, compete with native vegetation, and disrupt revegetation efforts. During construction, 225.4 hectares (ha) of native vegetation would be disturbed or cleared. Operation of the pipeline would also require on-going clearing to support required surveillance. This could result in a long-term conversion of forest habitat to earlier seral stages (forb and shrub stages) until the pipeline is abandoned and the lands along the RoW are reclaimed. Weed control is of concern to local and provincial governments, Aboriginal groups and the

	Fort Nelson Invasive Plant Management Area Steering Committee (FNIPMASC). Invasive species observed along the proposed route include scentless chamomile, curled dock, pineappleweed, annual hawk's-beard, smartweed and yarrow. Members of the FNFN, the PRFN and the DTFN expressed concerns regarding the potential loss of medicinal plants, berries and roots and bark of specific trees from the Project Footprint and in the RSA. NGTL confirmed that there would be opportunities for Aboriginal monitoring during pipeline construction. NGTL also indicated that meetings have been held with members of Aboriginal groups to discuss mitigation measures including the following reclamation measures and techniques: seed mixing, use of and practicality of rollback, bank restoration techniques at watercourses and natural regeneration as a primary reclamation measure. Finally, a commitment was made by NGTL to continue to engage with Aboriginal groups to determine their involvement in NGTL's reclamation process closer to the construction season.
Mitigation Measures	NGTL has committed to: ▪ updating the EPP prior to construction to include revised temporary workspace requirements within riparian areas at watercourse crossings; ▪ controlling weed introduction during construction; ▪ seeding and using reclamation techniques that prevent surface material loss due to water erosion during construction;] ▪ submitting to the Board, prior to construction, an Integrated Vegetation Management Program (IVMP) and an associated TransCanada Operating Procedure for Weed Control for the management of vegetation on the pipeline RoW and facility sites during post-construction and operational phases of the Project; ▪ complying with the applicable requirements in the BC *Weed Control Act* and the BC *Weed Control Regulations*, and working in cooperation and coordination with the FNIPMASC; ▪ participating in the FNIPMASC and working with the FNIPMASC's Pooled Resources Delivery Model; ▪ filing a Pest Management Plan with the BC MOE, which would be updated annually; and ▪ developing criteria to determine where vegetation management activities would be conducted. Criteria would be based on the treatment thresholds (e.g., as influenced by vegetation height, species, density and location).
Monitoring	NGTL has committed to monitor the effectiveness of revegetation efforts during post-construction monitoring (PCM). Vegetation in the reclaimed RoW would be visually compared with that of similar vegetation on undisturbed land adjacent to the pipeline RoW. Soil exposure, visible erosion, species type and weed densities would all be considered during vegetation assessment. Vegetation sampling would be conducted at locations where poor revegetation is evident in order to determine the cause (e.g., upper surface material/subsoil mixing, weeds and/or compaction) and magnitude of the problem, and assist in the identification of appropriate remedial measures.
Views of the NEB	The Board recognizes NGTL's commitment to controlling weed introduction and conducting seeding and reclamation during construction, as well as implementing an IVMP (including weed management) during post-construction and operational phases of the Project. Taking into account the commitments made by NGTL with respect to vegetation and weed management, and the recommendations of the Board provided below, the Board is of the view that the Project is not likely to result in adverse environmental effects to vegetation. The Board recommends that, in any approval granted, NGTL should be required to: ▪ Incorporate a Weed Management Plan into the EPP for the Section 58 Activities and file the EPP with the Board prior to the commencement of the Section 58 Activities (see Recommendation C(b) in Section 8.6); ▪ Incorporate a Weed Management Plan for the Horn River Facilities into the EPP and

	file the EPP with the Board prior to construction of the Horn River Facilities (see Recommendation E(a) in Section 8.6); ▪ File with the Board a Vegetation and Weed Management Plan for the post-construction and operational phases of the Horn River Facilities (see Recommendation F in Section 8.6); ▪ Conduct PCM for each of the subsequent five years following construction (see Recommendation N in Section 8.6); and ▪ Include temporary workspace requirements within riparian areas at watercourse crossings into the Horn River Facilities EPP (see Recommendation E(b) in Section 8.6).
Evaluation of Significance	Frequency: Multiple; Duration: Short- to long-term; Reversibility: Reversible; Geographical Extent: Project Footprint to Local; Magnitude: Moderate Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.3.2.3 Fish and Fish Habitat

Issues	▪ Fish mortality (direct or indirect) ▪ HADD from the pipeline installation and access
Background	There are 10 watercourse crossings and three NCDs that are fish-bearing on the proposed pipeline route. One watercourse (the unnamed tributary to Metlahdoa Creek, 20-WC) requires another season of open water surveys to determine its fish-bearing status. A trenched open cut method would be constructed if a watercourse is seasonally dry or frozen to the bottom at the time of construction. Trenched isolated crossing methods would be constructed at all pipeline crossings, including fish-bearing watercourses and NCDs, if open water is present at the time of construction. NGTL indicated that most of the watercourses would be expected to be dry or frozen to the bottom during the winter construction period. NGTL prepared a submission to DFO on 28 April 2010 requesting a determination of whether HADD of fish habitat is likely. orIn correspondence dated 18 November 2010, DFO concluded that if NGTL implements the mitigation measures provided in NGTL's submission to DFO dated April 2010 and in the Supplemental Environmental Studies for the Project, the Project is not likely to result in impacts to fish and fish habitat Members of the FNFN and DTFN expressed concerns regarding adverse impacts at stream crossings and potential water contamination, and these are addressed in NGTL's mitigation measures.
Mitigation Measures	NGTL has committed to: ▪ where applicable, following the DFO Operational Statements for Dry Open Cut Crossings, Clear Span Bridges and Snow Fills and Ice Bridges; ▪ working with DFO to ensure that the Project meets DFO's "no net loss" guiding principle; ▪ adhering to timing restrictions for fish as per the terms and conditions for changes in and about a stream specified by the BC Ministry of Water, Land and Air Protection, Peace Region, which identifies a least-risk window of 15 July to 31 March; ▪ reducing disturbance at watercourse crossings by locating most of the temporary workspace required for watercourse construction outside of the riparian management zone; ▪ identifying temporary workspace requirements within riparian areas at watercourse crossings including detailed construction RoW width requirements for the 10 fish-bearing and nine non-fish bearing watercourses; and ▪ conducting another season of open water surveys to determine the fish-bearing status

	of the unnamed tributary to Metlahdoa Creek (20-WC).
Monitoring	NGTL has committed to evaluate the success of reclamation within riparian areas at watercourse crossings during PCM. NGTL has also committed to implement a detailed water quality monitoring plan that would apply to all watercourses and fish-bearing NCDs with standing water at the time of construction, and non-fish-bearing watercourses with flow at the time of construction. No water quality monitoring would be undertaken at watercourses that are dry or frozen to the bottom at the time of construction.
Views of the NEB	Given that NGTL has committed to prepare a detailed water quality monitoring plan and include temporary workspace requirements within riparian areas at watercourse crossings into the EPP for the Horn River Facilities, the Board is of the view that the Project is not likely to result in adverse environmental effects to fish and fish habitat. However, should the proposed Project be approved the Board recommends that NGTL be required, as a condition of approval, to: ▪ Include temporary workspace requirements in the EPP for the Horn River Facilities (see Recommendation E(b) in Section 8.6); ▪ Include a detailed Water Quality Monitoring Plan for fish-bearing and atercourses and NCDs in the EPP for the Horn River Facilities (see Recommendation E(c) in Section 8.6); and ▪ Conduct another season of open water surveys for the unnamed tributary to Metlahdoa Creek (see Recommendation G in Section 8.6).
Evaluation of Significance	Frequency: Single; Duration: Short-term; Reversibility: Reversible; Geographical Extent: Project Footprint to Local; Magnitude: Low Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.3.2.4 Wetlands

Issues	▪ Loss and/or alteration of wetlands (hydrologic and water quality functions)
Background	Wetlands may be adversely affected during construction, operation and maintenance activities of the proposed Project. The Project has the potential to disrupt hydrologic and water quality functions in wetlands. NGTL states that it has worked toward the objective of "no net loss" of wetland function through avoidance of wetlands or, where avoidance is not feasible, through implementation of construction and reclamation mitigation measures. EC recommended that a pre- and post-construction wetland monitoring plan, to assess functional recovery (vegetation complement, internal water movement, surface water movement, wildlife presence, distribution and abundance) of these systems, be developed as part of the environmental assessment review process.
Mitigation Measures	NGTL has committed to: ▪ scheduling construction during winter; ▪ handling upper surface materials; ▪ controlling sediment and erosion; ▪ managing invasive species; ▪ restricting trenching to the ditchline; ▪ cutting/mowing/walking down shrubs and small diameter deciduous trees; ▪ minimizing grading within peatlands/wetlands; ▪ limiting the width of grubbing to the trench area if sufficient snow exists to pack down over work and storage areas; ▪ narrowing down the area of disturbance in wetlands;

	▪ leaving a trench crown during clean-up of peatlands/wetlands to allow for settlement of backfill; ▪ leaving breaks in the trench crown so as not to impede hydrologic function; ▪ restoring surface drainage patterns to as close to the pre-construction contours as practical during reclamation; and ▪ allowing peatlands/wetlands to naturally regenerate following construction.
Monitoring	NGTL has committed to monitor wetland recovery during PCM. The criteria used to determine the effectiveness of the proposed mitigation measures would consist of an assessment of the topographic condition of the pipeline RoW, to ensure that the surface drainage, profile and stability of the reclaimed RoW are consistent with the pre-construction patterns, directions and capacity of the surrounding landscape.
Views of the NEB	The Board notes that the EPP does not include a detailed Wetland Mitigation Plan. Therefore, the Board recommends that, as part of any approval granted, that NGTL be required to implement adequate wetland mitigation measures during construction (see Recommendation E(d) in Section 8.6). The Board also recommends that NGTL be required to monitor wetland recovery during the PCM program for each year of the subsequent five years following construction, if any approval is granted to NGTL (see Recommendation J in Section 8.6). If the PCM program determines that wetland reclamation has not been effectively achieved, and there appears to be some loss of wetland habitat or function, NGTL has indicated that compensation would be considered in consultation with EC. Therefore, the Board recommends that, as a condition of any approval granted to NGTL, that NGTL be required to consider wetland compensation in consultation with EC in the event that wetland reclamation has not been achieved (see Recommendation O in Section 8.6) The Board is of the view that, taking into consideration NGTL's proposed mitigation measures, as well as the Board's recommendations, the Project is not likely to result in significant adverse environmental effects to wetlands.
Evaluation of Significance	Frequency: Multiple Duration: Medium-term Reversibility: Reversible Geographical Extent: Project Footprint to Local Magnitude: Moderate Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.3.2.5 Bird Species Including Species at Risk Pursuant to Schedule 1 of the SARA

Issues	▪ Loss and/or alteration of habitat ▪ Disturbance to migratory bird nests and nestlings ▪ Loss and/or alteration of SARA listed bird species habitat
Background	There are four bird species listed in Schedule 1 of the SARA whose habitats occur throughout the Project LSA. The rusty blackbird is listed as a species of Special Concern. The olive-sided flycatcher, Canada warbler and common nighthawk are listed as Threatened. The olive-sided flycatcher, Canada warbler and common nighthawk received a new SARA designation as Threatened in March 2010, after the filing of the ESA for the Project. A supplemental wildlife analysis as well as a separate assessment for the common nighthawk, was subsequently carried out by NGTL. The Supplemental Wildlife Report concluded that, based on similar habitat requirements, the assessments and conclusions for rusty blackbird can be applied to olive-sided flycatcher, while the assessment and conclusions for wood warbler can be applied to the Canada warbler. No additional mitigation for the olive-sided flycatcher, Canada warbler and common nighthawk was considered necessary. No nests for these species were observed within or immediately adjacent to the Project Footprint during the June 2009 or the June 2010 wildlife surveys.

	NGTL estimated that during construction and operation of the Project, approximately 225.4 ha of vegetation important to wildlife (e.g., forested, riparian areas near creeks and wetlands) would be lost or altered. Clearing along the pipeline route and workspaces would temporarily reduce forage availability for wildlife and remove potential perch trees, particularly for wood warblers (including the Canada warbler). EC recommended that NGTL avoid carrying out activities that would result in the disturbance or destruction of active migratory bird nests. This involves avoiding activities during the migratory bird breeding season. EC indicated that 15 March to 15 August would generally include breeding activity for most but not all avian species across BC. itHowever, based on discussions between NGTL, EC and the Canadian Wildlife Service it was decided that, for this Project, NGTL would avoid clearing and construction activities during the 1 May to 31 July migratory bird breeding season. EC also recommended that the habitats of those species that exhibit a high fidelity to nest sites, such as the Sandhill Crane, or those species with specialized requirements, such as cavity-nesters, are either avoided or mitigated before commencement of the following breeding season.
Mitigation Measures	NGTL has committed to: ▪ following existing disturbance as much as practical and keeping the RoW width to a minimum; ▪ minimizing clearing of mature trees and narrowing down the RoW and temporary workspace to avoid habitat loss where practical; ▪ avoiding clearing vegetation beyond marked RoW boundaries; ▪ avoid clearing and construction activities in the restricted migratory bird breeding season; ▪ implementing an Active Migratory Bird Nest Survey (AMBNS) in the event clearing and/or construction would occur within the migratory bird breeding season to reduce the likelihood of disturbing or destroying active nests; and ▪ developing a guide to assist Environmental Inspectors in recognizing wildlife trees and techniques to save and salvage these trees during final surveying and clearing.
Monitoring	NGTL confirmed that a breeding bird survey of Lichen Creek would be conducted in summer 2012, and the results would be compared to the previous breeding bird surveys. Lichen Creek was identified as the only location within the RoW with a high diversity of birds.
Views of the NEB	The Board recognizes that the Project has the potential to disturb SARA listed bird species and birds protected by the *Migratory Birds Convention Act* and provincial legislation, as well as other wildlife species of special status. Given that the olive-sided flycatcher, Canada warbler and common nighthawk are listed as Threatened and the rusty blackbird is listed as a species of Special Concern on Schedule 1 of SARA, the Board is of the view that adequate mitigation and monitoring is required in consultation with appropriate provincial and federal authorities to verify appropriate protection of these bird species. Therefore, the Board would recommend that, if the proposed Project is approved, that NGTL be required to: ▪ Implement an AMBNS program to identify migratory birds and active nests in the event that clearing would occur within the migratory bird breeding season (see Recommendation I in Section 8.6); and ▪ Carry out a post-construction breeding and resident bird survey of Lichen Creek during operation of the Project (see Recommendation K in Section 8.6).
Evaluation of Significance	Frequency: Multiple Duration: Medium-term Reversibility: Reversible Geographical Extent: Project Footprint to Local Magnitude: Low to Moderate Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.3.2.6 Mammal Species at Risk Pursuant to Schedule 1 of the SARA

Issues	▪ Loss and/or alteration of boreal woodland caribou habitat ▪ Change to boreal woodland caribou habitat connectivity
Background	The construction, operation and maintenance of the proposed Project, particularly vegetation clearing during construction and on-going clearing as part of vegetation management, has the potential to alter boreal woodland caribou habitat and reduce habitat connectivity. The pipeline RoW would traverse the Snake-Sahtaneh caribou range for 59 km and the West Kotcho Core for about 8 km. The Cabin and Komie East meter stations are also located within the Snake-Sahtaneh caribou range. About 225.4 ha of vegetation important to wildlife would be lost or altered during clearing of the pipeline RoW and facility sites, including 28.5 ha within the West Kotcho Core. Boreal woodland caribou is a SARA Schedule 1 listed wildlife species, as well as a Red-listed species in BC. On 27 July 2010, the BC MOE approved the boundaries of the UWRs and WHAs for boreal woodland caribou in northeastern BC. The Project would traverse two UWRs and one WHA for boreal woodland caribou. The BC government has also recently announced that it is taking action to manage its boreal woodland caribou by introducing Resource Review Areas (RRAs) within which there will be no new natural gas and petroleum tenure sales. NGTL has confirmed that the Project would not traverse and is not located within the RRAs. NGTL also noted that no calving areas for caribou were identified during the wildlife surveys, and that BC MOE confirmed during consultation that the proposed route would not conflict with known calving areas for boreal woodland caribou. EC and the BC government have referenced studies about boreal woodland caribou.[1] Both studies indicate that the local population of the BC Snake-Sahtaneh boreal woodland caribou range is declining. The study referenced by EC also notes that there is evidence indicating that the current range is not self-sustaining given the declining trend and existing total disturbance. The BC study concludes that the BC boreal woodland caribou population is likely to decline and that there is a high probability that boreal woodland caribou could be extirpated from the Snake-Sahtaneh range. NGTL acknowledges the conclusions of these reports. However, NGTL has indicated that the pipeline must connect the Cabin meter station to the Sierra meter station and traversing the Snake-Sahtaneh caribou range cannot be avoided. NGTL consulted with BC MOE on further management requirements related to caribou habitat under the BC *Oil and Gas Activities Act* (OGAA). BC MOE indicated that although there is not currently a provincial caribou recovery plan, work would be initiated later in 2010 to develop best management practices that would support the OGAA and guide activities within approved UWRs and WHAs. At this time, best management practices applicable to the UWRs and WHAs are not available. In the event these become available prior to construction of the Project, NGTL has committed to review these practices and add any measures which are relevant but have not already been addressed in its Caribou Protection Plan (CPP). In the course of NGTL's Aboriginal engagement activities, members of the DTFN and the WMFN expressed concerns regarding decreased caribou population and habitat fragmentation in the region (see Section 6.1.1).

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1 Environment Canada (2008), *Scientific Review for the Identification of Critical Habitat for Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada* and BC Ministry of Energy, Mines and Petroleum Resources and Ministry of Environment (22 April 2010), *Projected Boreal Caribou Habitat Conditions and Range Populations for Future Management Options in British Columbia.*

Mitigation Measures	NGTL has committed to develop an updated CPP applicable to all Project facilities within the Snake-Sahtaneh caribou range. The CPP would include, but not be limited to, the following mitigation measures:
	▪ limiting the creation of a new linear corridor by following existing linear features such as pipeline RoWs and seismic lines to the extent practical (73% of the total route) and following previously disturbed areas (where following linear corridors is not possible);
	▪ conducting education and public awareness programs;
	▪ reducing human access through mitigation measures in the Access Control Management Plan applicable to the Project RoW, such as rollback;
	▪ limiting predator movement on the Project RoW through line of sight mitigation, that includes visual screens, rollback and/or earth berms;
	▪ encouraging rapid regeneration of natural vegetation by limiting grubbing width and reducing disturbance to ground level vegetation and root systems by cutting, mowing or walking down shrubs and small diameter trees at ground level along portions of the RoW where grading or soil salvage is not required; and
	▪ avoiding or minimizing construction during the critical timing window (15 April to 30 June) for boreal woodland caribou, as identified by BC MOE, as follows:
	  ▪ West Kotcho Core caribou zone: no work is permitted within the critical timing window; and
	  ▪ Snake-Sahtaneh caribou range: minimize activities during the critical timing window.
	NTGL has also committed to developing a Caribou Habitat Restoration Plan (CHRP) to be included in the updated CPP. The CHRP would include, but not be limited to:
	▪ identification of suitable restoration methodologies and delineation of restoration sites;
	▪ mitigative measures designed to retain peatland / wetland habitat quality for boreal woodland caribou; and
	▪ evidence of consultation with appropriate provincial and federal government authorities.
	NGTL has also indicated that it would participate in any consultation process associated with the development of provincial and federal recovery strategies and action plans for boreal woodland caribou.

Monitoring	NGTL has committed to monitor the effectiveness of access control measures and revegetation efforts during PCM. The effectiveness of access control measures would also be evaluated as part of routine surveillance during operation. Where rollback or other access control measures were installed as a means to deter human travel on new access or existing access, the integrity of the access control measures would be assessed and signs of all-terrain vehicle or snowmobile use noted. NGTL also made a commitment to participate in caribou initiatives in northeast BC including any monitoring programs.
Views of the NEB	The Board recognizes the sensitivity of potential disturbances to the boreal woodland caribou population and habitat in the Snake-Sahtaneh range. The boreal woodland caribou is listed as Threatened on Schedule 1 of the SARA. The Project would traverse the Snake-Sahtaneh range and the West Kotcho Core within it.The Board also notes the concerns of Aboriginal groups and provincial and federal government authorities. As a result, the Board would recommend that NGTL be required to carry out additional mitigation, monitoring and follow up if the proposed Project is approved. The Board is of the view that, as a condition of any approval, NGTL should be required to file an updated CPP as well as a CHRP for the Horn River Facilities that are located within the Snake-Sahtaneh caribou range (see Recommendation E(g) and E(h) in Section 8.6).

	The Board is of the view that, with the mitigation measures outlined in NGTL's application and subsequent filings, and the Board's recommendations, the Project is not likely to result in significant adverse environmental effects to boreal woodland caribou. For a discussion of the cumulative effects of the Project on boreal woodland caribou habitat, see Section 8.4 and Recommendation L in Section 8.6.
Evaluation of Significance	Frequency: Multiple Duration: Medium-term Reversibility: Irreversible Geographical Extent: Project Footprint to Regional Magnitude: Moderate to High Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.3.2.7 Air Quality and Greenhouse Gas Emissions

Issues	▪ Increased CAC emissions during construction and operation ▪ Increased GHG emissions during construction and operation ▪ Fugitive emissions during operation
Background	The construction and operation of the Horn River Facilities would result in CAC, GHG and fugitive emissions. The largest contributing sources of CACs and GHGs during construction would be from the removal of trees and other vegetation from the RoW and the burning of the land-clearing debris. The construction phase GHG emissions are estimated at 78,746 tonnes from land clearing (this represents 0.3% of annual wildfire emissions in BC). NGTL noted that the utilization options for merchantable timber cleared from the RoW are limited due to the local economy but that it anticipates local companies would be able to use all the higher quality merchantable coniferous timber. NGTL has committed to work with local community, business and Aboriginal groups to identify and encourage the use of local forest resources. The total emissions of CACs during operations are estimated to be less than one tonne per year. The total annual carbon dioxide equivalent (emissions during operation is expected to be 308 tonnes (based on the most recently available public data, this would represent approximately 0.0005% of the BC total emissions and 0.00004% of total national emissions in 2008). Fugitive emissions during operations would be expected to be limited to emissions of methane and carbon dioxide and were included in the GHG assessment.
Mitigation Measures	NGTL has committed to implementing the following mitigation measures to minimize the CAC, GHG and fugitive emissions from the construction and operation of the Horn River Facilities: ▪ using multi-passenger vehicles for the transport of crews to and from job sites to the extent practical; ▪ minimizing the amount of emissions associated with clearing of vegetation by following existing linear disturbance, where feasible; ▪ exploring options to reduce, reuse or recycle as much of the land clearing debris as possible prior to burning; ▪ complying with local government bylaws, the BC *Open Burning Smoke Control Regulation* and the *Forest Fire Prevention and Suppression Regulation* when burning land clearing debris; ▪ reducing emissions from land clearing by salvaging some of the wood for further processing into wood products; ▪ minimizing the unnecessary idling of construction equipment. Construction crews would be directed to reduce idling during summer and early fall months. However, this measure would not be practical during periods where the temperature is well below freezing;

	▪ using well-maintained equipment during construction and maintenance activities to minimize emissions; ▪ using one helicopter trip to perform multiple tasks when possible; and ▪ implementing TransCanada's Leak Detection and Repair program to manage fugitive emissions. In addition to the mitigation measures identified above, NGTL identified the following potential options for use of the forest resources by local communities and residents: ▪ decking timber at accessible locations for the use of local residents and/or area trappers; ▪ donating timber to the FNFN to construct a log cabin for the Joshua Project; ▪ donating timber to local fundraisers or for use in chainsaw courses; ▪ donating timber to the Andy Bailey Regional Park for use as firewood; and ▪ donating and delivering firewood to local First Nation elders.
Monitoring	NGTL has committed to collect operational data during the construction of the pipeline to quantify GHG emissions data from the construction of the Horn River Facilities. This data would then be utilized to update the construction phase portion of the GHG assessment for the Horn River Facilities.
Views of the NEB	The Board notes NGTL's commitments to collect operational data during the construction of the pipeline to quantify GHG emissions data from the construction of the Horn River Facilities. Given proposed measures to mitigate CACs and GHGs from the construction and operation of the Horn River Facilities, the Board is of the view that the Project is not likely to result in significant adverse effects on the atmospheric environment (see Recommendations D and M in Section 8.6).
Evaluation of Significance	Frequency: Multiple; Duration: Short- to Long-term; Reversibility: Irreversible; Geographical Extent: Project Footprint to Regional; Magnitude: Low Adverse Effect Not likely to cause significant environmental effects

Refer to Table 4 for definitions of the Evaluation of Significance Criteria

8.4 Cumulative Effects Assessment

The assessment of cumulative effects entails considering the impact of the residual effects associated with the Project in combination with the residual effects from other projects and activities that have been or will be carried out, within the appropriate temporal and spatial boundaries and ecological context.

A list of current and ongoing development activities and known proposed development activities was developed by NGTL to allow an assessment of cumulative effects of the Project in combination with other Projects or activities that have been or are likely to be undertaken. Past activities contributing to environmental effects include transportation activities (e.g., all-season and lease roads), forestry, oil and gas activities (e.g., pipeline and facility development), and utilities within the LSA. Other existing projects and facilities, and approved but not yet built projects and facilities in proximity to NGTL's proposed Project with residual effects that may interact with the Project include:

- existing Encana Ekwan Pipeline;
- approved Encana pipelines, geophysical program and Cabin Gas Plant;

- approved Encana and Apache wells;
- approved Arcis Corporation geophysical program;
- approved Great Plains Exploration wells and pipeline;
- approved Westcoast Fort Nelson North Gas Processing Facility; and
- approved Ledcor Sierra-Yoyo-Desan resources road upgrade.

Potential cumulative effects include:

- loss and/or alteration of native vegetation;
- loss and/or alteration of riparian habitat;
- loss and/or alteration of wetlands (hydrologic and water quality functions); and
- loss and/or alteration of boreal woodland caribou habitat.

NGTL has proposed to undertake specific mitigative measures to address cumulative effects related to certain biophysical and socio-economic elements.

Loss and/or Alteration of Native Vegetation

Construction and operation of the Project may result in a residual incremental loss and/or alteration of wetland function. Within the RSA, about 27,416 ha of native vegetation has been cleared by previous industrial activities. Clearing for the Project has the potential to result in an additional loss and/or alteration of 230.8 ha of native vegetation.

NGTL has committed to minimize the amount of disturbance to native vegetation and clearing in the area by paralleling existing linear disturbances, where practical. NGTL has also committed to avoid clearing vegetation beyond marked construction RoW boundaries and to implement mitigative measures contained in the EPP in the event of a discovery of rare plant species or rare ecological communities. Disturbed areas through native vegetation would also be seeded with the appropriate seed mix or allowed to naturally revegetate. NGTL concluded that the cumulative residual effect of the Project on loss and alteration of native vegetation is low to moderate, and reversible in the medium to long-term.

Loss and/or Alteration of Riparian Habitat

A residual incremental change in riparian habitat may occur due to construction and operation of the Project. Within the RSA, approximately 1,743 ha of the 23,121 ha of riparian habitat is currently disturbed. The Project would result in an additional 9 ha of disturbance to riparian habitat. NGTL indicated that disturbed riparian areas would be seeded with the appropriate native seed mix along with a quick-establishing cover crop. Additional revegetation efforts such as planting trees or shrubs would be undertaken in select locations where riparian areas are disturbed. NGTL concluded that with the implementation of mitigation measures, the cumulative residual effect of pipeline construction on clearing of riparian vegetation is low, and reversible in the medium to long-term.

Loss and/or Alteration of Wetlands

A residual incremental loss and/or alteration of wetland function may occur as a result of construction and operation of the Project. Wetlands are found throughout the RSA and changes to wetland functions as a result of the Project would be temporary, with no net permanent loss

expected as a result of construction and operation. NGTL predicted that the cumulative residual effect on wetlands would be low. The habitat, hydrologic and water quality functions of the wetland would be expected to be restored within the short to medium-term for non-peat wetlands and short to long-term for peatlands.

Loss and/or Alteration of Boreal Woodland Caribou Habitat

Construction and operation of the proposed Project may result in a residual incremental loss and/or alteration of boreal woodland caribou habitat.

Recent studies concerning the Snake-Sahtaneh boreal woodland caribou range indicate the caribou population is in decline, and that the decline is attributed to the increasing density of roads, wells, facilities and seismic lines in the caribou range. In addition, a recent BC MOE study[2] reported that approximately 33,491 ha of the West Kotcho Core is currently affected by oil and gas development. Direct habitat disturbance from existing land use in the West Kotcho Core that is included within the RSA is 3,508 ha of a total 34,477 ha. Incremental disturbance from the Project would result in an estimated increase in direct habitat disturbance within the West Kotcho Core of 24.3 ha. When the incremental disturbance from the Project is combined with other proposed future developments, the estimated cumulative direct habitat disturbance in the West Kotcho Core is 3,534 ha. NGTL's cumulative effects assessment indicates that the current level of anthropogenic and natural habitat disturbance (i.e., linear feature density and percentage young habitat) in the West Kotcho Core exceeds the level at which the caribou population would be sustainable and therefore the magnitude of existing cumulative effects is considered to be high.

NGTL has committed to minimizing the creation of new linear corridors and to minimizing the Project Footprint by paralleling existing corridors and utilizing shared workspace. Project effects would be further minimized by mitigation that results in reducing human access, limiting predator movement and sight lines, encouraging rapid regeneration of natural vegetation (including planting trees/shrubs in select locations), and avoiding critical timing windows (see Section 8.3.2.6). NGTL concluded that although the magnitude of existing cumulative effects within the West Kotcho Core is considered to be high, the Project's potential incremental cumulative residual effects on woodland caribou in the RSA and the West Kotcho Core are not detectable. Therefore, in NGTL's view, the magnitude of the Project's cumulative effects is considered to be negligible.

Views of the Board

The Board recognizes that the residual effects of the proposed Project may interact cumulatively with the residual effects of certain existing and/or approved but not yet built facilities in proximity to the Project area. The Board is satisfied with the cumulative effects assessment methods used by NGTL, including the selection of the spatial and temporal boundaries. As indicated above, the Board has identified that cumulative effects as a result of the Project are most likely to occur in respect of native vegetation, riparian habitat and wetlands, and boreal

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2 BC Ministry of Environment (2009), *Peace Region Boreal Caribou Monitoring Annual Report 2008-2009.*

woodland caribou habitat. With respect to these issues, the residual environmental effects of the Project acting in combination with other projects or activities are expected to be low to high.

Regarding cumulative effects on boreal woodland caribou habitat, the Board acknowledges NGTL's commitment to implement pipeline routing and design modifications and mitigation measures to minimize environmental effects and cumulative environmental effects on boreal woodland caribou habitat within the RSA and the West Kotcho Core. The Board notes that NGTL's primary Project mitigation for boreal woodland caribou habitat was through pipeline RoW routing and minimizing the Project Footprint. The Option B Komie Road Route minimizes habitat disturbance by paralleling the Komie Road and other existing disturbances along that route and takes advantage of what is considered compromised and non-functional caribou habitat. The Board further acknowledges NGTL's commitment to update the CPP and develop a CHRP for the Horn River Facilities that are located within the Snake-Sahtaneh caribou range.

However, the Board notes that the boreal woodland caribou is listed as a Threatened species under the SARA, largely due to cumulative environmental effects on its population and habitat. The Board further notes the recent studies carried out within the Snake-Sahtaneh boreal woodland caribou range that indicate that the population of boreal woodland caribou may be in decline and may not be self-sustaining due to ongoing habitat fragmentation and industrial development in the caribou range. Finally, the Board notes the concerns expressed by Aboriginal groups regarding decreased caribou population and habitat fragmentation in the caribou range. As a result, the Board would recommend specific mitigation measures as outlined in Recommendation E(g) and E(h) in Section 8.6.

The Board is mindful of the unavoidable and residual impacts to boreal woodland caribou habitat which may not be fully mitigated notwithstanding NGTL's proposed mitigation measures and Recommendation E(g) and E(h). The Board is of the view that any residual effects from the proposed Project that could not be mitigated could further contribute to cumulative effects on boreal woodland caribou habitat. Therefore, the Board would recommend additional measures as described in Recommendation L in Section 8.6. More specifically, the Board would recommend that any approval granted should include a requirement for NGTL to file with the Board a plan which describes offset measures for unavoidable and residual impacts to boreal woodland caribou habitat within the Project Footprint. Offset measures which require the acquisition of land are likely to require direction from other regulatory authorities. For the purposes of this particular Project, offset measures for boreal woodland caribou do not include actions that require land acquisition, replacement or substitution of habitat, habitat compensation, terrestrial no-net-loss measures or the regional application of mitigation strategies. The plan to be filed pursuant to Recommendation L should include a description of how the results of the information collected in Recommendation E(h)(i) have been used and confirmation that these results have been shared with BC MOE and EC. In addition, the plan should include evidence of NGTL's participation in the development of provincial and federal recovery strategies and action plans for boreal woodland caribou and in any other provincial caribou initiative in northeastern BC, including participation in regional monitoring programs. Such initiatives could include contributing to research activities which address data deficiencies and scientific uncertainties related to caribou ecology, or supporting activities relating to the conservation, mitigation and restoration of caribou habitat. Finally, the plan should include a description of any contribution made by NGTL to any initiatives for caribou habitat which are currently being undertaken or

planned to be undertaken in northeastern BC. If the proposed Project is approved, within one year following leave to open, NGTL would be required to submit to the Board a status report demonstrating actions undertaken with respect to the implementation of the offset plan or an update as to when implementation of the offset plan would be expected. EC commented that it is currently developing a national recovery strategy for boreal woodland caribou. EC is of the view that while the national recovery is being developed, it is important that appropriate steps be taken to avoid, reduce and mitigate likely adverse environmental effects on boreal woodland caribou. EC noted that one such approach is through measures undertaken as part of an offset plan. As a result, EC supported the Board's determination that offset measures for boreal woodland caribou are appropriate for the Project.

Among other recommendations,[3] EC noted that the development and implementation of the offset plan should be undertaken through a collaborative approach. The Board would encourage NGTL to work collaboratively with industry, academia, and government and non-government organizations in the development and implementation of the plan in Recommendation L.

Taking into account the Board's proposed recommendations as described above, and the mitigation measures proposed by NGTL, the Board is of the view that the cumulative effects of the Project on boreal woodland caribou habitat are not likely to be significant.

The Board is also of the view that with the implementation of the mitigation measures proposed by NGTL and the recommendations in Section 8.6, the cumulative effects of the Project on native vegetation, riparian habitat and wetlands are also not likely to be significant.

8.5 Follow-Up Program

The Project and its associated activities are routine in nature. The potential adverse environmental effects of the Project are well understood based on past projects of a similar nature in a similar environment. For these reasons, the NEB is of the view that a follow-up program is not warranted for this Project.

The Board understands that the other RA may rely on the Environmental Assessment to the extent possible but may produce an appendix to the EA report if necessary. The other RA will provide their respective determinations and may conduct a follow-up program to ensure that mitigation measures related to their areas of responsibility are identified through EA, and any conditions attached to licenses and approvals, are effectively implemented.

8.6 Recommendations

The following are recommended conditions that may form part of any regulatory decision on the proposed Project under the NEB Act. In these recommended conditions, the expression "commencement of construction" includes the clearing of vegetation, ground-breaking and other forms of RoW and site preparation that may have an affect on the environment, but does not include activities associated with normal survey operations. Where any recommendation requires

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3 For further discussion on EC's other recommendations, see Appendix 2 of this ESR.

a filing with the Board "for approval" that action shall not be commenced until the approval is issued.

A. Implementation of Environmental Protection

NGTL shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures for the protection of the environment included in or referred to in its application or as otherwise agreed to during questioning or in its related submissions.

B. Commitments Tracking Table

NGTL shall:

a) file an updated Commitments Tracking Table with the Board 14 days prior to commencement of construction of the Horn River Facilities;

b) update the status of the commitments in a) on a monthly basis until completion of the Horn River Facilities; and

c) maintain at its construction office(s):

i) the relevant environmental portion of the Commitments Tracking Table listing all regulatory commitments, including but not limited to, those commitments resulting from NGTL's application and subsequent filings, and conditions from permits, authorizations and approvals;

ii) copies of any permits, approvals or authorizations for the Horn River Facilities issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and

iii) any subsequent variances to any permits, approvals or authorizations in ii).

C. Environmental Protection Plan for the Section 58 Activities

NGTL shall file with the Board for approval, at least 14 days prior to the commencement of the Section 58 Activities, an EPP specific to the Section 58 Activities. The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Horn River Project, subsequent filings or as otherwise agreed to during questioning, in its related submissions or through consultations with other government authorities. The EPP shall describe the criteria for the implementation of all procedures and measures, and shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. The EPP shall also include:

a) measures arising from additional studies conducted in winter and summer 2010, supplemented with updated Environmental Alignment Sheets; and

b) an Weed Management Plan for the Section 58 Activities, including evidence demonstrating consultation with appropriate local, provincial and federal government authorities, Aboriginal groups and the Fort Nelson Invasive Plant Management Area Steering Committee (FNIPMASC) regarding weed control, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

D. Greenhouse Gas Assessment for the Section 58 Activities

NGTL shall collect operational data during the Section 58 Activities to quantify greenhouse gas (GHG) emissions. The data shall be included in the updated GHG Assessment Report in Condition M.

E. Environmental Protection Plan

NGTL shall file with the Board for approval at least 60 days prior to the commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, an updated EPP specific for all the Horn River Facilities. The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Horn River Project, or as otherwise agreed to during questioning, in its related submissions or through consultations with other government authorities. The EPP shall describe the criteria for the implementation of all procedures and measures, and shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. The EPP shall also include measures arising from additional studies conducted in winter and summer 2010 and spring 2011, supplemented with updated Environmental Alignment Sheets. In addition, the EPP shall include but not be limited to:

a) a Weed Management Plan including evidence demonstrating consultation with appropriate local, provincial and federal government authorities, Aboriginal groups and the FNIPMASC;

b) temporary workspace requirements within riparian areas at watercourse crossings;

c) a detailed Water Quality Monitoring Plan for fish-bearing watercourses and non-classified drainages that includes, but is not limited to:

   i) the methodology which will be used to carry out the Water Quality Monitoring Plan;

   ii) the rationale for selection of the parameters to be monitored;

   iii) monitoring frequency and the rationale for selecting the monitoring frequency; and

   iv) evidence demonstrating consultation with appropriate provincial and federal government authorities regarding the implementation of the Water Quality Monitoring Plan with respect to i) through iii);

d) a detailed Wetland Mitigation Plan, including changes resulting from the Pre-Construction Wetland Monitoring Plan, and evidence demonstrating consultation with appropriate provincial and federal government authorities on the proposed wetland mitigation measures, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns;

e) an updated Post-Construction Monitoring Program section that reflects a timeframe based on a five year regime as described in Recommendation N;

f) an updated Contaminated Soils Management Plan that contains the specific measures and remedial actions to be followed by NGTL in the event that contaminated soils are encountered during construction;

g) an updated Caribou Protection Plan (CPP) for the Horn River Facilities within the Snake-Sahtaneh caribou range. The CPP shall include additional mitigation measures applicable to the protection of caribou or caribou habitat in the event that the BC Ministry of Environment releases Regulated Operating Procedures for the oil and gas sector within Ungulate Winter Ranges and Wildlife Habitat Areas prior to the construction of the Horn River Facilities, and;

h) Caribou Habitat Restoration Plan (CHRP) for the Horn River Facilities within the Snake-Sahtaneh caribou range which is aligned with the province of BC's actions to restore boreal woodland caribou habitat. The CHRP is to be included in the updated CPP and shall include but not be limited to:

   i) identification of suitable restoration methodologies and delineation of restoration sites;

   ii) caribou habitat conservation measures, including long-term access requirements and plans for vegetation recovery within core habitats;

   iii) mitigative measures designed to retain peatland/wetland habitat quality for boreal woodland caribou; and

   iv) evidence of consultation with appropriate federal and provincial government authorities regarding the CHRP.

F. Vegetation and Weed Management Plan

NGTL shall file with the Board for approval, at least 60 days prior to commencement of construction of any of the Horn River Facilities other than the Section 58 Activities, a Vegetation and Weed Management Plan for the post-construction and operational phases of the Horn River Project. This plan shall include:

a) identification of objectives for vegetation and weed management;

b) a description of NGTL's vegetation management activities including on-going clearing, reclamation, seeding and monitoring;

c) a description of NGTL's weed management activities including long term weed monitoring and control procedures and the criteria for implementing these activities;

d) training and qualification requirements of NGTL staff responsible for monitoring and reviewing reports;

e) a description of specific accountabilities NGTL staff have with regard to vegetation and weed management;

f) a mechanism for tracking weed problems and weed control activities;

g) criteria to evaluate the effectiveness of the Vegetation and Weed Management Plan as well as adaptive management practices; and

h) evidence demonstrating consultation with appropriate local, provincial and federal government authorities, Aboriginal groups and the FNIPMASC regarding weed control, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

G. Aquatic Survey

NGTL shall file with the Board, at least 60 days prior to construction of any of the Horn River Facilities other than the Section 58 Activities, an aquatic survey for the unnamed tributary to Metlahdoa Creek (referred to by NGTL as crossing 20-WC). The survey shall include:

a) the methodology NGTL used to conduct the survey;

b) the results of the survey;

c) the timing of the crossing and the crossing method selected if the unnamed tributary is fish-bearing; and

d) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the methodology for and the results of the survey referred to in a) and b), any mitigation and monitoring to be used as a result of the survey, and a summary of any issues and concerns that were raised as well as the steps NGTL has taken or will take to address these issues and concerns.

H. Heritage Resources

NGTL shall file with the Board, at least 30 days prior to commencement of construction of any of the Horn River Facilities other than the Section 58 Activities:

a) a copy of the letter of clearance received under the BC *Heritage Conservation Act*;

b) all comments and recommendations received from the BC provincial authorities regarding the Supplemental Archaeological Impact Assessment; and

c) the mitigation measures that NGTL proposes to address the comments and recommendations in b).

I. Migratory Birds

Where NGTL cannot avoid conducting clearing or construction activities within the restricted migratory bird breeding season NGTL shall:

a) retain a qualified avian biologist to implement an AMBNS program to identify any migratory birds and active nests in areas immediately surrounding the site and reduce the likelihood of disturbing or destroying active nests prior to commencement of construction activities in the migratory bird nesting period;

b) file the results of the survey referred to in a) with the Board;

c) provide mitigation, including monitoring, developed in consultation with EC and Canadian Wildlife Service to protect any birds identified in the *Species at Risk Act* or their nests; and

d) file evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed methodology for the AMBNS, the results from the AMBNS and the mitigation and monitoring to be used, and a description of any outstanding concerns.

J. Post-Construction Wetland Monitoring Plan

NGTL shall file with the Board, at least 30 days prior to requesting leave to open, a Post-Construction Wetland Monitoring Plan for the Horn River Facilities. The plan should be designed to ensure that wetland function can be restored or compensated and that "no net loss" of wetland function can be achieved. The plan shall include:

a) the methodology that will be used for monitoring;

b) the criteria established for evaluating the effectiveness of the plan;

c) an evaluation of the effectiveness of the mitigation measures applied during construction of the Horn River Facilities against the criteria referred to in b);

d) an adaptive management approach to evaluate wetland function for each year of the subsequent five years following construction; and

e) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed monitoring methodology and associated mitigation measures outlined in the plan, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

K. Post-Construction Breeding and Resident Bird Survey

NGTL shall file with the Board, no more than six months following leave to open, a breeding and resident bird use survey to be conducted in the adjacent habitat at Lichen Creek as defined in NGTL's application. The survey shall include:

a) the methodology for conducting the survey;

b) the results of the survey;

c) mitigation strategies developed in consultation with EC to protect breeding and resident birds; and

d) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed methodology for the survey referred to in a), the results from the survey and the mitigation and monitoring to be used, as well as a summary of any issues and concerns that were raised and the steps NGTL has taken or will take to address these issues and concerns.

L. Measures to Offset Residual Impacts to Boreal Woodland Caribou Habitat

NGTL shall file with the Board, prior to requesting leave to open, a plan which describes measures to offset unavoidable and residual impacts to boreal woodland caribou habitat identified by NGTL within the Footprint. For the purposes of this Project, offset measures for boreal woodland caribou do not include actions that require land acquisition, replacement or substitution of habitat, habitat compensation, terrestrial no-net-loss measures or the regional application of mitigation strategies. The plan should include:

a) a description of how the results of the information collected in Recommendation E(h)(i) have been used and confirmation that these results have been shared with BC MOE and EC;

b) a description of NGTL's contribution to any initiatives for caribou habitat which are currently being undertaken or planned to be undertaken in northeastern BC. Such initiatives could include research activities which address data deficiencies and scientific uncertainties related to caribou ecology or activities relating to the conservation, mitigation and restoration of caribou habitat;

c) evidence of NGTL's participation in the development of provincial and federal recovery strategies and action plans for boreal woodland caribou and in any other provincial caribou initiative in northeastern BC, including participation in regional monitoring programs; and

d) any additional measures that NGTL may identify as contributing to the plan.

Within one year following leave to open, NGTL shall submit to the Board a status report demonstrating actions undertaken with respect to the implementation of the plan. If no implementation has yet occurred, NGTL shall submit an update as to when NGTL would expect to undertake such implementation.

M. Updated Greenhouse Gas Assessment Report

NGTL shall file with the Board, within six months following leave to open, an updated GHG Assessment Report which includes operational data collected during the construction of the Horn River Facilities to quantify GHG emissions. The report shall include but not be limited to:

a) the methodology used for collecting the data during the construction of the Horn River Facilities; and

b) a comparison of operational data with the estimated emissions in NGTL's Detailed Air Quality and GHG Assessment Report.

N. Post-Construction Environmental Monitoring Report

NGTL shall file with the Board, six months after the commencement of the operation of the Horn River Facilities, and on or before the 31 January for each year of the subsequent five years, a Post-Construction Environmental Monitoring Report for the Horn River Facilities that:

a) describes the methodology that will be used for monitoring;

b) describes the criteria established for evaluating the effectiveness of the monitoring;

c) evaluates the effectiveness of the mitigation measures applied during construction of the Horn River Facilities against the criteria referred to in b);

d) identifies deviations from plans and alternate mitigation applied as approved by the Board;

e) identifies locations on a map or diagram where corrective action was taken during construction and the current status of corrective actions; and

f) provides proposed measures and the schedule NGTL will implement to address any unresolved concerns.

O. Wetland Restoration and Compensation

NGTL shall consult with EC on all wetlands where wetland function has not been fully restored at the close of the five-year Post-Construction Monitoring Program, and undertake further restoration or compensation as recommended by EC, or provide a rationale for why NGTL will not abide by EC's recommendation. NGTL shall file with the Board copies of all correspondence demonstrating consultation with EC on any potential wetland compensation as part of the five-year post-construction monitoring report.

9.0 NEB'S CONCLUSION

Pursuant to the CEA Act, the NEB has determined that, if the Project is approved and, taking into account the implementation of NGTL's proposed environmental protection procedures and mitigation measures, compliance with the Board's regulatory requirements and the recommendations included in this Environmental Screening Report, the construction and operation of the Project is not likely to cause significant adverse environmental effects.

This ESR was approved by the NEB on the date specified on the cover page of this report under the heading CEA Act Determination Date.

10.0 NEB CONTACT

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APPENDIX 1: SCOPE OF THE EA

Scope of Environmental Assessment

NOVA Gas Transmission Ltd. (NGTL)

Proposed Horn River Facilities

SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Pursuant to the *Canadian Environmental Assessment Act*

1.0 INTRODUCTION

NOVA Gas Transmission Ltd. (NGTL) is proposing to construct and operate the Horn River Facilities (the Project), an extension of the Alberta System into northeast British Columbia (BC). This would require a Certificate of Public Convenience and Necessity pursuant to section 52 of the *National Energy Board Act* (NEB Act). The Project would also be subject to an environmental screening under the *Canadian Environmental Assessment Act* (CEA Act).

On 12 May 2009, NGTL filed a Project Description with the NEB regarding the proposed Project. The intent of the Project Description was to initiate the environmental assessment (EA) process pursuant to the CEA Act.

On 20 May 2009, the NEB sent out a Federal Coordination Notification letter pursuant to section 5 of the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (Federal Coordination Regulations). In response, the following departments identified themselves either as a Responsible Authority (RA) likely to require an EA under the CEA Act, or as a Federal Authority (FA) in possession of specialist or expert information or knowledge in respect of the proposed Project EA:

- National Energy Board – RA
- Transport Canada (TC) – RA
- Department of Fisheries and Oceans (DFO) – FA
- Environment Canada (EC) – FA
- Natural Resources Canada (NRCan) – FA
- Health Canada – FA

The Provinces of AB and BC were notified, although provincial EA legislation is not triggered. This Scope of the EA was established by the RAs, after consulting with the FAs, in accordance with the CEA Act and the Federal Coordination Regulations.

2.0 SCOPE OF THE ASSESSMENT

2.1 Scope of the Project

The scope of the Project as determined for the purposes of the EA includes the various components of the Project described by NGTL in its 19 February 2010 Project application submitted to the NEB.

The physical activities include construction, operation, maintenance and foreseeable changes, and site reclamation, including the following physical works described in greater detail in NGTL's Project Application:

Pipeline:

- Construction and operation of approximately 72 kilometres (km) of new 914 millimetre (mm) (NPS 36) outside diameter (OD) sweet natural gas pipeline from the proposed Cabin Meter Station to the proposed Sierra Meter Station on the existing Ekwan Pipeline in BC (to be acquired from Encana Ekwan Pipeline Inc.), located approximately 70 km east of Fort Nelson, BC (Cabin Section).
- Construction and operation of approximately 2.2 km of 610 mm (NPS 24) OD sweet natural gas pipeline, extending northeast from a point on the Cabin Section to the proposed Komie East Meter Station (Komie East Extension).
- Approximately 47 km of the total new pipeline length of 74 km consists of non-contiguous right-of-way, including both the Cabin Section and Komie East Extension.

Meter Stations:

- Four proposed meter stations (Cabin Meter Station at the north endpoint, Sierra Meter Station at the south endpoint, Komie East Meter Station and Little Hay Creek Meter Station), including:
  - custody transfer metering;
  - communication and control systems; and
  - associated piping and valves.
- Modifications to the piping configuration at the existing Ekwan Meter Station in AB to accommodate the gas volumes transported on the new pipeline.

Other Facilities:

- Pipeline valves
- Valves and blind flanges to accommodate the potential installation of launcher and receiver facilities for in-line inspection
- Cathodic protection system
- Associated miscellaneous works such as pipeline warning signs and aerial markers
- Permanent access roads for pipeline operations
- Potential new electrical power lines and facilities for operating metering facilities (constructed, owned and operated by third-party power providers)
- Temporary infrastructure such as construction access roads, stockpile sites, pipe storage sites, contractor yards and construction camps

NGTL is proposing to begin construction in the second quarter of 2011 and the proposed in-service date is in the second quarter of 2012.

Any works or activities associated with the decommissioning/abandonment phase of the Project would be subject to future examination under the NEB Act and consequently under the CEA Act as appropriate. Therefore, at this time, any works or activities associated with these phases of the Project will be examined in a broad context only.

2.2 Factors to be Considered

The EA will include a consideration of the following factors listed in paragraphs 16(1) (a) to (d) of the CEA Act:

(a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
(b) the significance of the effects referred to in paragraph (a);
(c) comments from the public that are received in accordance with the CEA Act and regulations; and
(d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project.

For further clarity, subsection 2(1) of the CEA Act defines 'environmental effect' as:

(a) any change that the project may cause in the environment, including any change that the project may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species as defined in the *Species at Risk Act*;
(b) any effect of any change referred to in paragraph (a) on
    i. health and socio economic conditions,
    ii. physical and cultural heritage,
    iii. the current use of lands and resources for traditional purposes by aboriginal persons,
    iv. any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance; or
(c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada.

2.3 Scope of Factors to be Considered

The EA will consider the potential effects of the proposed Project within spatial and temporal boundaries within which the Project may potentially interact with, and have an effect on, components of the environment. These boundaries will vary with the issues and factors considered, and will include but not be limited to:

- construction, operation and site reclamation, as well as any other undertakings proposed by the proponent or that are likely to be carried out in relation to the

physical works proposed by the proponent, including mitigation and habitat replacement measures;

- seasonal or other natural variations of a population or ecological component;
- any sensitive life cycle phases of species (e.g., wildlife, vegetation) in relation to the timing of project activities;
- the time required for an effect to become evident;
- the time required for a population or ecological component to recover from an effect and return to a pre-effect condition, including the estimated degree of recovery;
- the area within which a population or ecological component functions; and,
- the area affected by the Project.

For the purpose of the assessment of the cumulative environmental effects, the consideration of other projects or activities that have been or will be carried out will be limited to those for which formal plans or applications have been made.

APPENDIX 2: COMMENTS ON THE DRAFT ESR

Government Authorities and Applicant	Comments	Section in ESR where wording was modified	Explanation of why change was not made to the ESR
TC	TC recommended including applications for *Navigable Waters Protection Act* and NEB Act approvals to Section 1.3, Baseline Information and Sources.	Section 1.3	While the Board has accepted TC's suggestion in respect of the *Navigable Waters and Protection Act*, the Board notes that NGTL's application for NEB Act approvals was already listed in Section 1.3 as "Project Application including ESA" and "Supplementary filings to the Project Application".
	TC recommended including three watercourse crossings (Lichen Creek, Moss Creek and the Sahtaneh River) within the Construction Phase of Table 2.	Section 4.0, Table 2	n/a
	TC recommended including TC as the other RA that would assess the environmental effects of an abandonment application within the Abandonment Phase of Table 2.	Section 4.0, Table 2	n/a
	TC recommended including a statement describing the proposed crossing of the three navigable watercourses in Section 5.0, Human Occupancy and Resource Use.	Section 5.0	n/a
	TC proposed adding a statement on navigation impacts to Section 8.2, Project - Environmental Interactions.	Section 8.2, Table 8.2	n/a
	TC provided a summary statement to be included in Section 8.3.1, Analysis of Potential Adverse Environmental Effects to be Mitigated through Standard Measures.	Section 8.3.1	n/a
EC	EC indicated that it became aware that habitat suitable for the rusty blackbird occurs within the Project area through NGTL's submission on the Draft ESR on 17 December 2010. As a result, EC recommended that NGTL provide an assessment of likely impacts on this species arising from the proposed Project.	n/a	The Board notes that NGTL assessed potential effects of the Project on the rusty blackbird as well as proposed mitigation measures in Section 6 of the ESA for the Project. In addition, NGTL's assessment of potential cumulative effects on the rusty blackbird is discussed in Section 7 of the ESA for the Project. The Board is of the view that the assessments carried out by NGTL are sufficient to enable the Board to reach its determination in respect of bird species.
	EC suggested that NGTL work with local naturalists, Bird Studies Canada, and other non-governmental agencies in support of bird monitoring beyond the one year already committed to.	n/a	The Board notes that as part Recommendation K in Section 8.6, NGTL is required to file evidence to confirm that NGTL consulted with the appropriate provincial and federal government authorities on its proposed methodology for the breeding and resident bird survey, the results from the survey and the mitigation and monitoring to be used. Recommendation K also requires NGTL to develop mitigation strategies in consultation with EC. At these times, EC would have an opportunity to provide input on the survey. Given the above, the Board is of the view that further changes to Recommendation K are not required.

Government Authorities and Applicant	Comments	Section in ESR where wording was modified	Explanation of why change was not made to the ESR
	EC supported the Board in determining that offset measures are appropriate for the Project (Recommendation L). EC also offered the following recommendations for consideration for the development of the offset plan: 1. that the offset plan be developed to address information gaps, scientific uncertainties and residual effects as these relate to the Project proposal; 2. that the offset plan be science-based, and aimed at generating key information that could be applied to future pipeline project proposals in the region; 3. that the offset plan address any additional disturbance on the landscape as a result of the Project; and 4. that development and implementation of the offset plan be undertaken through a collaborative approach involving industry, academia, and government and non-government agencies.	Sections 8.4 and 8.6	The Board is of the view that Recommendation L already addresses the first and third recommendations made by EC. In respect of the second recommendation, for this particular Project, the Board does not wish to limit the scope of the plan in Recommendation L to a science-based plan. EC's fourth recommendation is addressed in Section 8.4.
NGTL	NGTL provided clarification that the Project would not require new permanent access roads. Therefore, NGTL suggested removal of references to new access roads in the Summary, Section 1.1 and Section 4.0 (Table 2) of the ESR.	Summary, Section 1.1 and Section 4.0 (Table 2)	n/a
	NGTL recommended adding the rusty blackbird to the list of wildlife species listed in Section 5.0 as being included on Schedule 1 of the SARA.	Section 5.0	n/a
	NGTL recommended revision of the wording in Section 6.1.1, Comments from Aboriginal Groups, to more accurately reflect the commitments NGTL made in response to the NEB Information Request 2.9(b) and 2.9(d).	Section 6.1.1	n/a
	NGTL recommended revision of the wording in the last paragraph of Section 6.1.1, Comments from Aboriginal Groups, to reflect a reorganization of BC ministries on 25 October 2010.	Section 6.1.1	n/a
	NGTL recommended deletion of the first mitigation measure listed within Section 8.3.2.2, Vegetation, to reflect the evolution of NGTL's draft EPP as a result of NGTL's response to the NEB's Information Request 2.7(b).	Section 8.3.2.2	n/a

Government Authorities and Applicant	Comments	Section in ESR where wording was modified	Explanation of why change was not made to the ESR
	NGTL recommended revision to the fourth mitigation measure listed within Section 8.3.2.3, Fish and Fish Habitat.	Section 8.3.2.3	n/a
	NGTL recommended revising the timing of the breeding bird survey noted under "Monitoring" within Section 8.3.2.5, Bird Species including Species at Risk Pursuant to Schedule 1 of the SARA.	Section 8.3.2.5	n/a
	NGTL requested that the Board consider revising the submission date of the EPP (Recommendation E) and the Vegetation and Weed Management Plan (Recommendation F) in Section 8.6 to 30 days prior to the commencement of construction.	n/a	The Board has considered NGTL's request and determined that a submission date of 60 days prior to construction is appropriate. The proposed 60-day timeframe allows the Board to thoroughly review all the components of the EPP and Vegetation and Weed Management Plan. The Board notes NGTL's comment that the Board would have been provided with much of the content of the final EPP as a result of the hearing process and NGTL's EPP for the Section 58 Activities. The Board recognizes that some information relating to the Project EPP was made available by NGTL during the proceeding and that additional information may be filed by NGTL as part of the EPP for the Section 58 Activities. However, the Board notes that both the EPP and the Vegetation and Weed Management Plan require the filing of supplemental and new information, some of which may be complex in nature, which was not previously filed on the record of this proceeding. The Board further notes that the EPP for the Project incorporates information which is not required for the Section 58 Activities, such as the Wetland Mitigation Plan, updated CPP and CHRP. In addition, the Board notes that a longer length of time allows for post-approval discussions, should the Board issue a Certificate for the Project, between NGTL and Board staff on specific matters that may arise in respect of NGTL's compliance with these Recommendations
	NGTL proposed deletion of Recommendation L (Offset Plan for Boreal Caribou Habitat) and modifications to Recommendation E(h) (Caribou Habitat Restoration Plan) in Section 8.6.	Sections 8.4 and 8.6	The Board has considered NGTL's proposed changes to Recommendations E(h) and deletion of Recommendation L and has determined that Recommendation L is required in order to address unavoidable and residual impacts to boreal woodland caribou habitat identified by NGTL within the Project Footprint. The Board is of the view that any residual effects that could not be mitigated could further contribute to cumulative effects on boreal woodland caribou habitat. The Board notes that in its cumulative effects assessment for the Project, NGTL also concluded that there would be residual effects on boreal woodland caribou

Government Authorities and Applicant	Comments	Section in ESR where wording was modified	Explanation of why change was not made to the ESR
			habitat. Recommendation L was intended to address these effects. The Board notes that NGTL agreed with the Board's view that other opportunities should be employed to address unavoidable and residual effects to boreal woodland caribou. The Board also notes that NGTL did not object to the content of Recommendation L, but instead proposed to incorporate Recommendation L into Recommendation E(h). However, the Board is of the view that the Recommendations have been designed to meet specific pre- and post-construction requirements. The CHRP described under Recommendation E(h) is required to be filed prior to construction as part of the updated CPP and within the EPP. The plan described under Recommendation L is required to be filed prior to requesting leave to open so that NGTL can describe actions to offset unavoidable and residual impacts of the Project as a result of construction. The Board notes that EC concurred with Recommendation L and provided further guidance. See Section 8.4 for further detail. The Board recognizes NGTL's concern that the term "offset" could be interpreted to require habitat compensation, terrestrial no-net-loss measures, or the regional application of mitigation strategies. The Board notes that it has already indicated that the word "offset" could include other measures such as contributing to research activities which address data deficiencies and scientific uncertainties related to caribou ecology, or supporting activities relating to the conservation, mitigation and restoration of caribou habitat. The Board also notes that Recommendation L specifically describes the offset plan required by the Board. To provide further direction, the Board has clarified its expectations of the offset measures in Recommendation L. In the Board's view, this provides greater clarity while achieving the Board's objective of addressing the unavoidable and residual impacts to boreal woodland caribou. For further discussion on boreal woodland caribou, see Chapter 8 of the GH-2-2010 Reasons for Decision.